WEST ASIAN WATER RESOURCES AND POTENTIAL CONFLICTUAL SITUATIONS

ABSTRACT

THESIS

SUBMITTED FOR THE AWARD OF THE DEGREE OF

Doctor of Philosophy

IN

STRATEGIC STUDIES

BY

MONIKA PATHAK

UNDER THE SUPERVISION OF

DR. JAWAID IQBAL

CENTRE FOR STRATEGIC STUDIES
ALIGARH MUSLIM UNIVERSITY
ALIGARH (INDIA)

1997

ABSTRACT

Water is the most important natural resource for human existence. The critical importance of Fresh water for the survival of human race was recognized even in early civilization whose growth and sustenance were closely tied to water distribution systems.

The issue of sharing rivers water and problem of water shortage has become acute in the west Asian region. These problems are likely to become critical unless urgent and immediate action is taken both to increase and to conserve existing supplies of water resources. West Asia is a developing arid region and is facing the problem of water crisis. It has arid or semi-arid climate with average annual rainfall leavels of less than 250MMY. It is also cyclone dominated area. Some parts of the region which are near the Mediterranean Sea, Experience a special type of climate called the Mediterranean climate. There winters are mild, summers are warm and rainfall is during the winter season. These are three major drainage basins: the Jordan drainage basin, the Litani drainage basin and the Euphrates- Tigris drainage basin.

The Jordan River is the most important source of water in the Jordan basin. The river flows through Jordan, Syria, Lebanon and Israel. The length of the river is 156 miles of which 73 miles is under Israeli controlled territory. Its total flow is 1880 MCMY of which 77 per cent is in the Arab states and 23 per cent in Israel. The Jordanian northern headwaters have three tributaries- the Hasbani in Lebanon, The Dan in Israel and Baniyas in Syria. The major tribatory of Jordan is the Yarnuk. The Jordan basic also includes Israeli occupied territories of West Bank, Gaza Strip and the Golan Heights. The Jordan system discharge an average annual flow of 1350MCM into the Dead sea.

For centuries, the Jordan River had been a symbol of life and peaceful co-

existence in West Asia. The creation of Israel in 1948 sowed the first seeds of discord over the sharing of the waters of the Jordan. From the early 1950's several plans and proposals were drawn up for the utilization of the waters of the river on a coopiative basis. Some of the importants plans are: McDonald Plan (1951), Cotton Plan (1954), Arab Plan (1954), Baker Harza Plan (1955), Unified Johnston'S Plan (1955), and Arab League Plan(1964). However, due to the intrasigent attitude of the Irsael's as wel' as Arabs none of the plans could be implemented.

Israel considers the control over water supply a strateigc instrument and defensive technique that greatly effects regional balance of power. Predictably, Israel, policy has generated a lot of tension as the Arab riparian state have opposed.

Israel's attempt to control the water of the Jordan river. After its failure to acquire water of the Jordan in cooperation with the Arab states, it emarked on its National Water Carrier Project. A major feature of the Israeli project was the irrigation of the Negev and its articulated water policy. The second river ones which there is acute controversy regarding the sharing of its waters in the Ltani.

The Litani river originates in the south of Lebanon and is a national river in the Republic of Lebanon. The Litani is 170km long and has narrow ridge and width approximately 6km. Its basin has been divided into three major parts; the Upper basin, the Middle basin and the Lower basin. The area of its basin covers 2,290sq km that separates the Litani from the Hasbani river, a tributary of Jordan. The total flow of Litani is approximately 700 MCM.

The Awali river is also a major contributor in the context of waters of Lebanon. The water of the Litani have been a source of great attraction for the Jewish state since 1948. Prior to the establishment of the state of Israel, the Zionist Agency in Palestine made every possible efforts to include the Litani river within the boundaries of the future Jewish State. However, they failed in their efforts and the Litani remained with Lebanon. Its was only in the late 1970's that Israel could manage to abtain a foothold on the

Litani when it occupied a portion of southern Lebanon. With the second Israeli invasion of Lebanon in the early 1980's this occupation was further expanded and consolidated. Israel carriedout extensive hydrological and technical studies, aimed at diverting part of the Litani's water into northern Israel. The movement towards a comprehensive settlement of the Arab-Israel Conflict which began in the early nineties has rekindled hopes of solving the water dispute in a peaceful manner.

The 1991 Gulf was acted as a catalyst in recopening peace talks in the region. The first round of the talks between the frontline Arab states and Israel took place in Madrid in October 1991. One of the items on the agenda of the multilateral talks was sharing of river waters in the region. At the subsequent rounds of negotiations Israeli government has shown a willingness to withdraw from southern Lebanon in return for some amount of assured water supply from the Litani. The Lebanese government too has indicated that it is not averse to sharing water with Israel if it can lead to faster economic development of the region as a whole.

The longstanding problem of sharing Litani waters can only be solved by adoption a pragmatic approach in the frame- work of regional cooperation. Both Israel and Lebanon can workout a formula where by water can become an instrument for promoting peace and regional development. What is needed is a willingness to make mutually beneficial compromises on the part of Beirut as well as Tel Aviv. Without such a positive attitude it is extremely unlikely that the vexed question of sharing waters can ever be solved in this turbulent region.

The Euphrates and Tigris are the major rivers in the Euphrates- Tigris basin. The Euphrates flows through Turkey, Syria and Iraq. The Euphrates is 1,480 miles in length from the confluence of Karasu and Murad- Suyu to Basra. Three Major tributaries of Euphrates originates in Turkey- Khabur, Sajur and Balikh rivers. The Firat is the main stream and it has four important branches the Karasu, the Murat, the Munzur and the Peri. The mean discharge of Euphrates is 31,820 MCM. The annual discharge varies

from 16,871 mem to 43,457MCM.

The Tigris originates in southern Turkey and then enters Iraq near the border village of Fiesh Khabur and then it flows through Fatha which separates Hamrin and Makhood uplands. The total length of Tigris is 1,718 km. The important tributaries are the Great Zab, the Lesser Zab, Diyala and the Adhaim.

The minimum discharge of the river is estimated to be 5,140 MCMY, and the maximum 440,000MCMY. During times of flood, the Tigris receives about 20,000 ppm, silt by weight. Tigris and Euphrates together drain 808,000sq km.

The Euphrates and Tigris rivers have been a source of livelihood since 4000 B.C. In this basin variou old civilization have developed and thrived. The region is called as the 'Cradle of Civilization'. The mesopotamian and Babylonian civilizations have flourished in this region. From the beginning of this century, the sharing states of Euphrates- Tigris drainage basin have all formulated plans and implemented projects to regulate the flood waters of Euphrates as well as utilize its water for multipurpose projects.

These river have immense regional importance. The economic prosperity of Turkey, Syria and Iraq revolve around the two rivers as they constitute the principal source of hydropower and agricultural development. As the up stream state Turkey has sought to exploit water in its territory, thereby causing acute concern to its downstream states. The relation between Turkey and Syria have been strained many a times mainly due to the formers efforts to control the flow of river. During the dry seasons which the Turkish and Syrian dams impounded part of Euphrates spring flood, a major crisis developed between Syria and Iraq that brought the two countries to the brink of war. Iraq and Syria traded hostile statements in which Iraq threatened to take any action necessary to insure the Euphrates flow and Syria protested that it was passing on to Iraq 71 per cent of the water it receive from Turkey. In the early 1980's Iraq and Syria complained against Turkey that it was holding back a main part of the water

from the Euphrates for its use. In 1982 a Joint Technical Committee was setup by Turkay and Iraq to discusse on exchange of hydrological data. But the problem of water allocation however has not been solved so far. Turkey's assertive position on the issue of Euphrates water right is unacceptable to both Syria and Iraq. They have therefore spurned Ankara's offer of joint ventures as long as their legitimate rights are not recognized by the Turkish government.

In the 1990's the problem of sharing Euphrates water has become more complicated as Syrian and Tarkish irrigation works are nearing completion. Sewage and industrial development in the two countries threaten to lower water quality. Growing population is also a source of concern as the demand for domestic use has perceptibly increased in the past decade.

International Law regarding the sharing of river water resources is still in a nascent stage and a full fledged international legal regime pertaining to this issue can develop only with the cooperation of all riparian states.

Europe was the first continent which witnessed disagreement over the sharing of river waters. In 17th century controversy arose over navigation rights on the Danube and Rhine rivers. This controversy was resolved with the signing of several agreements which have become a milestone in the development of international law on navigation. The Rhine and Danube commission were primarily administrative bodies concerning navigation issue. The American continent too witnessed sharp disagreement over the sharing of river water in the 18th and 19th century. The treaties signed on the European continent at times provided the basis for cooperative action with regard to the allocation of river water. However in some cases the situation demanded a completely new set of ideas and rules which had to take account the particularties of a specifice situation. There various treaties were signed in connection with the navigation boundary waters in an important landmark in the evolution of international rules regarding water rights.For instance; Jay treaty (1794), Rio-Grande treaty (1906), Columbia river treaty (1909), and Tijiuana and Colorado treaty (1944).

International water treaties in the Afro-Asian continent are of relating recent origin and the earliest treaty that was concluded in this part of the world was concluded in 1929 between Egypt and the United Kingdom. This treaty was in the context of the diversion of the waters of the Nile river proportionately among riparian states. The British Government suggested that it should be based on following consideration: The legal principle is that the waters of Nile river, the combined flow of the white and blue Nile and their branches should be accepted as a single unite, designed for the use of people inhabiting their banks according to their needs and capacity to benefit from the Nile.

Just after the partition of India, a conflict developed between India and Pakistan in relation with the water allocation of Indus Basin. The treaty was signed between these two countries on May 4, 1948 for the utilization of water of Indus basin. The Ganges water agreement was signed on November 5, 1977 over the sharing of Ganges water at Farakka. Its aim was also to seek a long -term solution for a augmentation of the dry season flows of Gangas.

Treaties regarding international rivers in West Asia have been patterned on the lines of European and American water treaties. The earliest treaty in this connection was following: the Franco-British convention concluded in December 1920 involving the Tigris, Euphrates, Jordan and the Yarmuk rivers: It reflects the practice where the vested as well as reserved rights of riparian states were protected. During the mandate, Britain and France adopted several agreement to regulate the flow of international rivers under their jurisdiction to develop upstream consumptive uses in Syria and Lebanon. They agreed to permit Palestinian authorities to do work in Syria for the benefit of down stream users. The mandatory system provided legal machinery for resolving conflicts over water through bilateral consultations. In 1921 the treaty of friendship concluded between Persia and Russia stated that the two countries they "shall have equal rights of usage over the Atrak river and other frontier rivers and water ways". An important West Asian water treaty was signed between the United kingdom and France on 3 February 1922 in connection with the utilization of the Yarmuk waters in equal proportion. The Final Protocol of the Franco-Turkish delimitation commission, May 3, 1930 recommended that: "whereas its neighbourhood on the Tigris imposes on the riparian specific obligations, it becomes necessary to establish rules regarding the rights

of each sovereign state in its contexts with other water purpose." In March 1946 the treaty of Friend Neighbourly Relation was concluded between Iraq and Turkey. As per this treaty both countries could carry out conservation works relating to the Euphrates and Tigris in order to regulate the flow of the two rivers with a view to avoiding the danger of floods during the annual period of high water. The main aim of this treaty was both countries can conservation relating Euphrates and Tigris, in order to regulate the flow of the two river during the annual period of high water.

In June 1953, Syria and Jordan signed a treaty concerning the joint development and utilization of the Yarmuk river waters. In July 1987 an economic cooperation agreement was signed between Turkey and Syria. Turkey was infavour of ad-hoc bilateral joint ventures in water and energy development and was prepared to cooperate on data management. It is obvious that; International water treaties in West Asia are few and even the over's that have been signed are of a general nature. Many questions still remain unanswered and these seems to be very little effort to deal with contentious issues. Do upstream states within which a river originates, leave specific, have priority over down stream states? Do population growth and other needs in are riparian state gave it priority over another? Should a riparian state be demanded to consume water in more economical ways? Should be demanded of one riparian state to use only certain sources of water and leave specific sources for supplying the needs of other? These and related questions are as yet unanswered in the region and there is very little by way of international water treaties regime to serve as a guide. The result is that each country prefers to go it alone and all practical considerations and pragmatics solutions have been sacrificed at the alter of populist and sometimes grandiose schemes. It is only in the 1990's that the states in the region have shown some degree of willingness to eschew unilateral action and workout solutions on a cooperative basis in the light of existing unilateral laws and conventions.

From the foregoing analysis it is apparent that the instead of exploiting the river on a regional basis, each of these states has preferred to go it alone on whatever portion of the river that happens to lie within or along its borders. The result of this approach has been tragic, not only because such an approach is insufficient and uneconomical, but also and perhaps more importantly, such action has the potential of precipitation war among the shar-

ing states of West Asia.

Water, however, has often been seen as the primary strategic factor behind the political and military manoeuvring in region. Under such tensed conditions, issues that might otherwise be managed peacefully can always trigger extreme responses. Water conflict in West Asia have been zero sum water for one user means lack of water for the other. Factors of ideology and nationalism, prevent West Asian states from cooperating with each other to alleviate the problem of water scarcity. However, in the present scenario the only remedy lies in taking a regional approach to the problem. That is, water from certain countries could be diverted to other, according to the needs. This implies tacit recognition of the legitimacy of various demands. Thus factors like population growth and other needs in one riparian should be given priority over another. At the same time a riparian should be asked to consume water in more cronomical ways. It should also be demanded of one riparian to use only certain sources of water leave a specific source for supplying the needs of other. Conservation measures such a reduction of waste in irrigation, phasing-out of water intensive crops and price increases towards real value should be taken up an endangering basis. Neither time, money or hope should be wasted on regional water development projects. Care must be taken, however, to avoid plans that are grandiose or impossible part water development projects like the 1950's plan of Eric Johnston failed to anticipate the level of hostilities in the region. In order to avoid past mistakes future project could be financed by the international monetary fund on the condition that the granting of money depended an unanimous agreement among the all riparian states.

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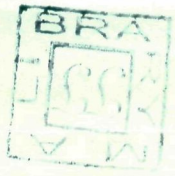

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Certificate

Certified that the thesis entitled ***"West Asian Water Resources and Potential Conflictual Situations"*** submitted by **Ms. Monika Pathak** is a bonafide work to the best of my knowledge. I certify that this thesis (original work) is fit to be sumitted for the degree of Doctor of Philosophy of the Aligarh Muslim University, Aligarh. The candidate has fulfilled the reqirements of attendance etc.

Jawaid Iqbal

Dated : 18/04/98

(Dr. JAWAID IQBAL)
Supervisor

CONTENTS

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PREFACE

PREFACE

Water is an important basic natural resource. It is the most fundamental substance crucial for the existence of civilization, or for the existence of life itself. With increasing global population and improvement in the quality of life, more and more water will be required for different uses. Water as a resource is not evenly distributed over space and time. Some times during the year, it is in plenty and at other times becomes scarce. Moreover, it is abundant somewhere and scarce in other places. Water has always been in great demand for multi-purpose uses e.g.domestic industrial, agriculture, navigation, recreation and aqua-culture. Through water has been unquestionably identified as a precious resource, its management and utilization has distinctly differed from those of other economic resources. While the total amount of water available in the world is constant this amount of water can certainly meet vastly higher human needs if used efficiently.

Approximately 71per cent of the surface of the earth is covered with water including the great oceans, lakes rivers and the polar icecaps. Lakes, rivers and oceans have provided sustenance, transportation and protection. Current estimates demonstrate the total volume of water on earth to be 44,150 MCM; of this 93.3 per cent is ocean water which can be used for fisheries and navigation. Only 2.7 per cent is fresh water. 77.2 per cent of the fresh water is stored in polar icecaps and glaciers and 22.7 per cent is stored as groundwater and soil moisture. As deep groundwater is not easily accessible, only 10per cent fresh water is available for human consumption.

Many countries are tied together by joint dependence on the same river system, which can lead to conflict. An international river has become an element of dispute in the politics of arid region. One such region is West Asia facing acute crisis over water resources.

The region has arid or semi arid climate with shortage of rainfall. While demand for water is rapidly growing in West Asia, the supply of fresh water is limited. As far as an arid region is concerned typical war is generated by increasing competition for water combined with problems of water shortage during the dry seasons.

Water resources management and allocation has crept on the strategic agenda in West Asia, since water related allocation data has become politically sensitive. The strategic significance of water in West Asia requires consideration of the following issues: the concept of the water weapon itself; can it serve as a useful deterrent? An upstream state on an international river may threaten to build dams regulating flow downstream. A downstream state on the other hand can threaten to destroy water diversion works. Water is a major part of a complex system of political and economic leverages. There is ample evidence to show that actual conflict in West Asia is directly and exclusively related to the control and exploitation of water resources.

The purpose of this study is to present a detailed account of the conflict surrounding sharing of river water resources and study its cause and effect on the West Asian region. It will look into the potential conflictual situation that has been built up as a result of the regions limited water resources. This study aims at looking into the problem in a clear and objective manner and to identify the prime factors responsible for generating intense international tension and conflict. The eventual aim of this work is to seek out possible practical solution to tide over water crisis in the West Asian region.

The primary concern in the present in the present study is to develop a conceptual frame-work in connection with rivers water allocation among riparian states. The focus of this study is on four rivers. These rivers are the Jordan, the Litani, the Euphrates and the Tigris. It is these four rivers which have been the centre of acute controversy since the Second World War. There is intense competition among the riparian states to control the flow of these rivers which at times has degenerated into actual hostilities. All rivers have

perennial water course in semi desert to land and as such they assume importance far out of proportion to their modest discharges. Dispute over allocation of water has blocked cooperative efforts to solve the problem and the perpetual interference of great powers in the region have made these issues more complex and intractable.

The Thesis is divided into five chapters. The first chapter begins with a discussion of the geography of the West Asian region as a whole. It then moves on to the hydrology of the region wherein the four rivers which are the focus of the study are discussed in detail.

The second chapter opens with a discussion of the historical background. The struggle over Jordan as well as Litani water resources have been an important component of the Arab-Israeli Conflict since its inception. Water development project which have been put forth from time to time for the utilization of the waters of the Jordan and Litani have also been discussed in this chapter. The development of the Euphrates-Tigris basin began since around 4000B.C. and the conflict that have arisen in this century have also been analysed in this chapter.

The third chapter deals with the political dimension of the conflict. It is hydro-politics more than economics that is at the base of much of the conflict over rivers' waters. Jordan and Litani rivers have become in inextricably linked to the Arab-Israeli Conflict and water is being perceived as a primary strategic factor behind political and military manoeuvring. In the case of the Tigris-Euphrates too, control over water is seen to be a decisive factor in the competition for regional hegemony.

Chapter four analyses the role of International Laws and Treaties and the extent of their applicability to the problem of sharing river waters in West Asia. The last chapter is a summarization of the entire study. It also highlights solution proposals in consonance with the situation obtaining at present.

I shall never fail in my duty to bow down down in reverence to Almighty God who has always been bestowing His blessings generously given me

strength, patience and motivation to complete this work. It gives me immense pleasure to thank those people who have helped me during the course of this work.

In the completion of the present works I wish to acknowledge my profound gratitude to my Supervisor, Dr.Jawaid Iqbal, Centre of West Asian Studies, Aligarh Muslim University, Aligarh, for his diligent guidance and valuable suggestions. I would like to express my thanks to Prof. Brigadier, M.M. Zaki, Director, Centre for Strategic Studies, AMU., Aligarh, for his constant encouragement and kind motivation. My sincere thanks to Prof. Akhtar Majeed, Former Director, Centre for Strategic Studies, AMU., Aligarh, for his helpful attitude. Despite his busy schedule he always found time to extend his advices and suggestions. My gratitude also goes to Dr. Hasan Askari Kazmi, Centre of West Asian Studies, AMU., Aligarh, for his inspiration and useful comments. I am also thankful to Dr.Iqbal-ur-Rahman and Dr.Anwar Alam, AMU., Aligarh for their kind motivation and inspiration during the completion of present study. My heartfelt thanks to Dr.Aparna Chandra and Farhana Kausar for their much needed help during the course of this study. I am thankful to the staff of the Library of the following institutions: American Centre Library (New Delhi), Jawahar Lal Nehru Central Library (New Delhi), Islamic Studies (AMU., Aligarh), Strategic Studies (AMU., Aligarh), Maulana Azad (AMU., Aligarh), West Asian Studies (AMU., Aligarh). I am thankful to the University Authority for providing me financial assistance during the course of study.

Finally, I wish to express my gratitude to my parents for their patience and forebearance, with out whose affection this work would not have seen the light of the day. My special appreciation goes to Miss Roshan Jahan and Mohd. Umar Khan who painstakingly and sucessfully typed this thesis.

MONIKA PATHAK

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GEOGRAPHICAL FRAME-WORK AND HYDRO-LOGICAL SYSTEM OF FOUR RIVERS: JORDAN, LITANI, EUPHRATES AND TIGRIS

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INTRODUCTION

West Asia is a rapidly developing region and water scarcity is not a new phenomenon in the arid region. Annual water supply in the West Asian region is neither reliable nor plentiful. While demand for water is rapidly increasing in West Asia, the supply of fresh water is limited[1]. As a result, the situation is getting worse progressively and the shortage of water is approaching crisis levels. The major rivers of the region are : the Jordan, the Litani, the Orontes, the Euphrates, the Tigris, the Shatt-al-Arab, and the Nile.[2] (See Fig-1). The physiography of this region is very complicated and its topography directly influences the life style and occupation of the inhabitants of the region.

The region may be divided into separate units. The northern mountain zone, overlying the states of Turkey, northern Iraq, Syria and Iran which consists of lofty mountain ranges. The southern zone consists of plains and plateau[3]. A characteristic feature of the region is that plateaus are situated in between most of the mountains. The Anatolia stands between the two major mountain belts (Pontus and Taurus). The Pontus mountains lie in the north along Black Sea with the highest peak, Kalar Dagi, 3870 metres above sea level. The Taurus range is a great formidable mountain chain.

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1. Murakabmi, Masahiro, *Managing Water for Peace in the Middle East: Alternative Strategies* (Tokyo: United Nations University Press, 1995) , p.1
2. Ibid.
3. Peter, Beaumont, Gerald Blake, and Wagstaff J.Malcom, *The Middle East-A Geographical Study* (New York: John Wiley and Sons,1976), p.17

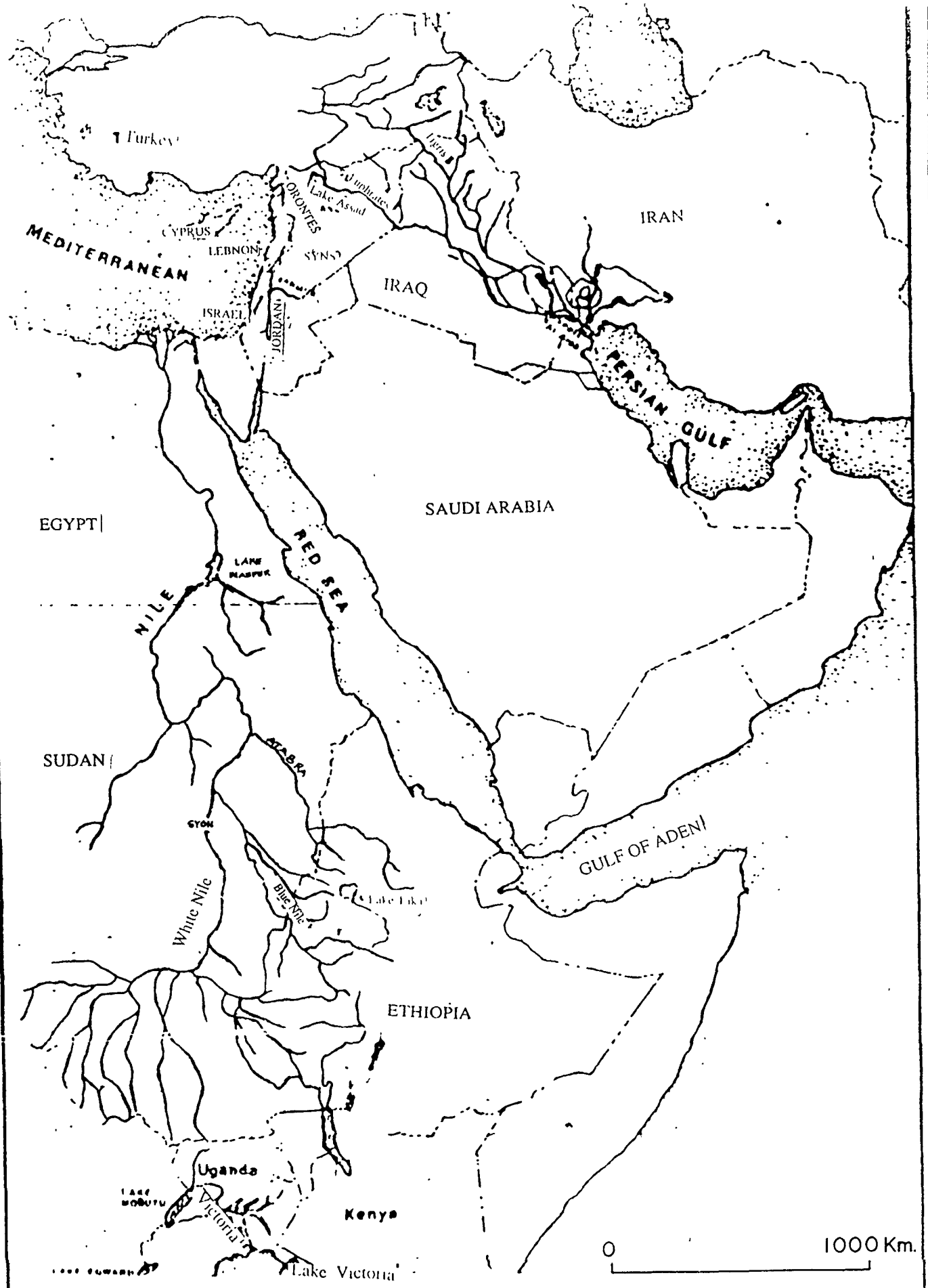

Figure I : Regional Map of West Asia
Source : Middle East Research Institute (Naff and Maston) 1984

The highest peak is Mor Dagi, 3147 meters located in the eastern Taurus.[4] The mountain ranges are the Elburz and Zagros mountains.

The plateaus have an important place in the physical features of the region. The Central Plateau Iran is occupied by a series of closed basin with no outward drainage of any sort. Plains also play a significant role in the physical features of the region. The climatic conditions of West Asia also varies from region to region. In most of the West Asian States climate is harsh and arid with scanty rainfall and very high potential evaporation except in the coastal and mountainous regions. West Asia is also a cyclone dominated area. Cyclones come from the west, cross over the Mediterranean Sea and enter West Asia . Some areas of the region which are nearer the Mediterranean Sea experience a special type of climate called the Mediterranean climate. The winters are mild, summers are warm and there rainfall is during the winter season.[5] Throughout the region there is a shortage of water. Only in parts of north - eastern Turkey and north-western Iran there is surplus water supply. Smaller areas of surplus water supply occur along the highland regions of Turkey , the higher parts of the Elburz mountain in Iran, along the coastal strip of Syria and the Lebanon and the Black Sea coast of Turkey. Water surplus areas permit river system to exist in the region . They are also responsible for replenishing the ground water resources.

The surplus water of northern region is transported through very great distances into areas experiencing water scarcity by river systems and ground water reservoirs . For example, the Tigris and Euphrates rivers transport the surplus water to the intensively arid regions of Southern Iraq.[6] The type of water resources development which has been most common in the West Asia since the Second World War has been the construction of large dams with the objective of serving a number of purposes. These have usually included the provision of irrigation water, domestic and industrial water supply, hydro-electric power generation and flood control. The West Asian re-

4. Longrigg Stephen H, *The Middle East: A social Geography* (Gerald : Duckworth and Co., 970), p.19 and see also W. B . Fisher, *The Middle East: A Physical Social and Regional Geography* (London: Methuen & Co., 1971), p. 344.
5. Peter , Beaumont, *op.cit*; pp. 55-60.
6. W.B. Fisher, *Change and Development in the Middle East* (London: Methuen & Co., 1981), p.41.

gion can be divided into three main river basin: the Jordan Basin, the Litani and the Euphrates-Tigris Basin.

1. THE JORDAN RIVER

The Jordan River is the major source of water in Jordan Basin. It is the third largest perennial river in West Asia. The Jordan is a multinational river. It has four riparian states: Israel , Jordan, Syria and Lebanon (See Fig-2). The length of Jordan is 156 miles of which 73 miles is under Israeli occupied territory and the remainder in Syria, Lebanon and Jordan.[7] The Jordan river flows southward rising in the slopes of Mount Hermon and draining into the Dead Sea. The total flow of water of Jordan river is 1880 million cubic metre(MM) annually. Of this 1488 MCM or 77 per cent originates in three Arab States and 432 MCM or 23 per cent in Israel.

The Jordan river has two-sections the al-Sharea and the Jordan. The al-Sharea, is the name of the Jordan river, before it rises from Lake Tiberias and descends from a height of 230 feet above sea level to Lake Tiberias, 650 feet below sea level.[8] The northern headwaters of the Jordan are formed by the confluence of three rivers. These are, from west to east, the Hasbani in Lebanon, the Dan in Israel and Baniyas in Syria.

The Hasbani originates in southern Lebanon near Hasbia in the south west of Gabal-El-Sheikh. Its annual flow varies widely depending on rainfall and its annual discharge is 138 MCM. The Dan river rises entirely within Israel. It flows from Tel Khadi in Israel and is the largest among the three tributaries. Its annual discharge is 245 MCM. The Baniyas river has its source in south-western Syria. It has an annual discharge of 121 MCM. These three sources of the Jordan river meet at a point six kilometres inside Israel where they give rise to the Upper Jordan river. The total

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7. Omar Z, Ghobashy, *The Devolopment of the Jordan River* (Arab Infomation Centre, Information Paper No. 18, November 1961), p. 279.
8. Ibid.
9. Thomas Naff and Ruth Maston, *Water in the Middle East : Conflict or Cooperation* ? (Colorado: Boulder, Westview Press ,1985), p. 20.

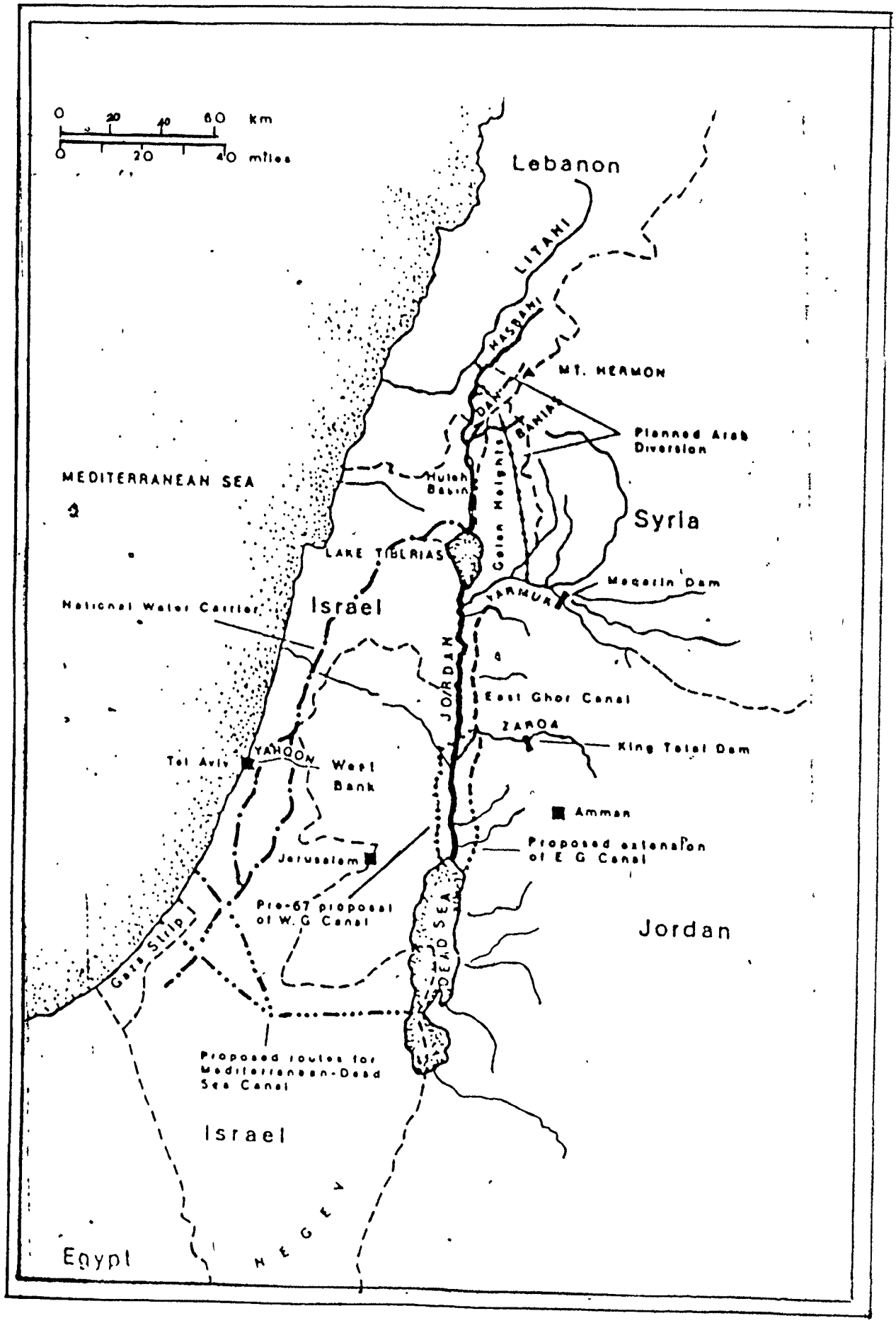

FIG. 8

Source : Samir N Saliba, The Jordan River Dispute, 1968

average annual flow of the three rivers based on the above cited statistics is 491 MCM.[9] The Jordan river and its tributaries are the principal water source for Israel and Jordan. The Jordan river is joined ten kilometres south of the lake by the Yarmuk river. Before reaching the Jordan, the Yarmuk river forms the Syrian -Jordanian border for 40 kilometer and then becomes the Isreali-Jordanian border.[10] The Yarmuk is a major tributary of the Jordan river. The headwaters of the Yarmuk (450-475MCM) are in Syria. Its basin covers an area of 7,252 square kilometres of which 1,424 sq. km, lie within Jordan and 5,828 sq.km. within Syria. The Yarmuk's flow is derived from winter precipitation that average 364 MM in a year.[11] The mean annual discharge is 400 MCM, which is 65 per cent of the total discharge of 607 MCMY from the Jordan's East Bank. The flow is largely influenced by rainfall pattern in the Mediterranean climate. The salinity of the Yarmuk is quite low.[12]

Surface water resources are dominated by the Yarmuk and Zarqa rivers which provide the majority of the irrigation water for the Jordan Valley. The Yarmuk's mean annual discharge of 400 MCM provides almost half of the surface water resources of the Jordan river. South of its confluence with the Yarmuk, the Jordan flows on the surface of the late tertiary rocks that partially fill the Rift Valley.[13] For the first 40 km the river forms the international boundary between Israel and Jordan; south of that reach , it abuts the Israeli occupied West Bank of the Jordan where it forms the present cease-fire line. The Jordan here flows via the deepest subaerial portion of the Rift Valley to pass the Dead Sea at 398 metre below sea level, which is the lowest point on the surface of the Earth. Jordan is shaped into a shallow Valley along the Lake Tiberias and the Dead Sea, which it meanders for about 320 km in broad loops.[14]

The ground water inflow have important place in the discharge of Jordan river.

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10. Moshe Inbar and Jacob Maos, *Water Planning and Development in the Northern Jordan Valley* (Water Information 9, 1984), p.20.
11. Thomas Naff and Maston, *op.cit.*
12. J.Huang , A. Banerjee, *Hashemite Kingdom of Jordan Water* (Sector Study Report, World Bank Report, No.4 699) pp 35-36.
13. Cited in Murakami Masahiro, *op.cit.* , p.78.
14. Thomas Naft and Maston, *op.cit.* , p.21 and See also World Bank Jordan Water Resources (Sector Study World Bank Report, No.7099).

Upper Jordan and the headwaters of the Yarmuk play a key role in ground water resources. This is supplemented by spring flow to the lower parts of the system. Rather much of that contributed is saline and its effect is to contaminate water quality. The catchment of the Jordan river, excluding it upper basin, is an integral part of the arid to semi-arid region. The total area covered by the Jordan basin is 18, 300 sq km. Of this three per cent is located in pre-1967 Israel.[15] The Jordan basin also includes Israeli occupied territories i.e. West Bank, Gaza Strip and the Golan Heights.

The Jordan system discharge an average annual flow of 1,850 MCM into the Dead Sea.[16] Generally high quality of water is received by the headwater of Jordan. Its three branches have a salinity of about 15-20 parts per million (ppm). The quality of water of Jordan is good for agricultural, domestic and industrial purposes. As the Jordan proceeds down into the Rift Valley toward the Dead Sea it becomes saltier. Ultimately, the salinity of the Jordan River system reaches 25 per cent or 250,000 ppm in the Dead Sea. The quality of the lower Jordan is reflected by rainfall patterns and the quantity of base flow extracted up stream. Water salinity is about 350 mg of total dissolved solids per litre in the rainy season. It increases to 2,000-4,000 mg per litre in the dry season at Allenby Bridge near Jericho. Finally, the salinity reaches 250,000 mg of total dissolved solids per litre in the Dead Sea.[17] The riparian states which share the Jordan basin are dependent on the waters of the Jordan river in varying degrees. The degree of dependency rests on a numbers of factors such as climatic conditions, rainfall and availability of other sources of fresh water etc.

In Syria the climate and economic activities are very closely related and dependent on each other. The rainfall in the west is up to 700 MM in a year. Though most of Syria has an annual rainfall of 250 MMY, rainfall is fairly abundant in the west, where the height of the land tends to determine the amount received. The eastern and southern zone of Syria are almost rainless. The north has sufficient rainfall to support

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15. Murakami Masahiro, *op.cit.*, p.74.
16. Natasha Beschorner, "The Jordan Basin And Litani Basin ," Water and Instability in the Middle East, *Adelphi Paper 273*, (Winter 1992-1993), p.8.
17. Murakami Masahiro, *op.cit.*, p.79.

light vegetation.[18] Syria controls the headwaters of the Yarmuk river. In 1967 Syria received 50-60 MCM of water from the Yarmuk and 20 MCM of the water from the Lower Yarmuk. Since 1975, Syria has been increasing the use of Yarmuk for irrigation. It is planning to construct a number of projects. Syria's farmers are fully dependent on the Yarmuk river water for irrigation purpose. In 1990 Syria was using 153 MCM from Yarmuk river.[19]

Lebanese water supplies are seasonal and storage facilities are practically non-existent. The total water supply of water in Lebanon is approximately 4,800 MCM. There are 15 permanent rivers, of which three are shared by other countries : the Kabir and the Asi draining into Syria and the Hasbani which flows into Israel. The climatic conditions of Lebanon varies according to elevation and distance from the sea. The coastal lowlands are moderately hot in summer and warm in winter and completely free from frost.[20] Lebanon is the only state in West Asia which is relatively rich in surface and ground water resources. At present Lebanon is working on a project to harness the water of the Hasbani river.[21]

Israel and Jordan both have semi-arid climate and are located between the relatively high rainfall area of Lebanon in the north and the low rainfall land of Egypt in the south In the northern and central portion of the country the annual rainfall ranges from 400 to 700 MM. In the southern desertic section the annual rainfall varies from 25 MM in the south to 250 MM in the north. Annual rainfall estimated to be around 500-700 MM, is received by the western slope of West Bank. The eastern slopes receives about 100-500 MM of rain, while the Gaza Strip receives 200-400 MM of rain throughout the year.

The north of Israel provides 80 per cent of Israeli water resources of which 65 percent is used in agriculture. The total renewable fresh water resources of Israel is

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18. Shebonti Dadwal Ray, "The Politics of Water in West Asia ," *Stratigic Analysis*, Vol XIX, No.3 (June 1996), p.475 and See also, F.W. Fisher , "Physical Social Geography ", *the Middle East and North Africa* (Londan: Europa, 40th Edition, 1994), pp.802- 803.
19. Natasha Beschorner, *op.cit.*, pp.17-19.
20. Ibid.
21. Ibid., pp.78-87.

estimated to be 1,600 MCM, of which 35 per cent originate from the Jordan river valley and Lake Tiberias. Israel's water consumption was estimated at 1,750 MCM in 1990. Of this 1,162 MCM was consumed for irrigation purposes, 484 MCM for domestic and 106 MCM for industrial uses.[22] In addition Israel utilizes approximately 70-100 MCM of water from the Yarmuk river per year.

Ground-water supplies account for 60 per cent of Israel's annual water supply. The main reservoirs are the coastal aquifer, with an annual safe yield estimated at 240-300 MCMY. The mountain or Yarkon-Taninim aquifer is located in the western highlands of the West Bank and supplies 340 MCMY of water, 80 per cent of which is used by Israeli consumers.[23] This aquifer is considered an important and integral part of the Israeli network. Few ground water systems are available in Galilee, in the northern part of the West Bank and Gaza Strip. The Israeli water sector is facing major problems. Over use of existing water stocks and mismanagement by the water authorities of the countries of the region have collectively contributed to a situation of extreme water scarcity.

Water is a scarce natural resource in Jordan. Only 8.6 per cent of the country receives more than 200MM annual rainfall. This scarcity has led to considerable concern among Jordanian technocrats about the country's dwindling water supplies.[24] The annual water supply of Jordan is approximately 800 MCMY, of which surface water is 320 MCM, renewable ground water 270 MCM and non- renewable water 210 MCM, the latter being Jordanian strategic resources abstracted at a rate of 50 MCMY.[25]

In 1990 the total water consumption in Jordan was 360 MCM of surface water and 383 MCM of ground water. The domestic in sector consumed 75 MCM water, the industrial sector 35 MCM and the agricultural sector 520 MCM. Jordan has one of the lowest percapita annual water consumption in the world. But despite this, water de-

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22. Naff and Maston, *op.cit.*, p.63.
23. State of Israel , Central Bureau of Statistics, *Statistical Abstract of Israel 1991*. Cited in Natasha Beschorner , Adlphi Paper 273. *op.cit.*, pp.10-11.
24. TAHAL Water Master Plan , *Report on the Water Sector in Israel , 1990.* Cited in Natasha Beschorner, Ibid., p.10.
25. Natasha Beschorner, Ibid., pp.16-17.

mand began to outpace supply in 1987 and municipal rationing was introduced.[26] Consumption is expected to reach 1,120 MCM, of which 300 will be in the domestic sector in the year 2005. Jordanian ground water is being abstracted at a rate of 170 MCM, beyond its safe yield. It has precipitated the decline of water tables, notably at the al-Azraq oasis, the main source of supply of drinking water to Amman. The Disi aquifer shared with Saudi Arabia, could produce 100-120 MCMY of high-quality drinking water, to be pumped to the cities of Aqaba, Amman and Zarqa.[27]

Jordan is also facing water management problem, which may be broadly summarized as follows: institutional competition; heavy municipal network losses; irrigation network losses, lack of storage facilities , industrial pollution and a weak water pricing policy. The Jordanian water planners are acutely aware of the need to educate the population in water conservation.[28]

2. THE LITANI RIVER

Lebanon is a small mountainous country, and is rich in water resources. However, the country has very little mineral resources or raw materials. The southern part of the country stretches from the Awali river to the Israeli border and from the Mediterranean Sea in the west to Mount Hermon and the Syrian-Israeli border in the east. It is called Jabal Amil. Topographically, the main regions of south are following: (i) A coastal Plain 1.5 km in width, (ii) A group of plateaus, gentle valley and rolling hills which becomes more rugged as it connects with Mount Hermon of the Lebanese Syrian-Israeli border. The Mountains on the two sides of the border face each other, with Jabal Sheikh forming the highest peak overlooking the area around it. In the south, the Jabal Amil is connected with the lower Jabeel mountain of Palestine (iii) Mount Hermon and Jabal Amil join in the Rashayya where the Litani river from the north is blocked and diverted westward by Jabal Al-Gharb. Al Gharb is strategically important for the defense of Damascus. (iv) The inner Marjuy'un Valley runs south of Jabal Al-Gharb, all

26. Ibid.
27. M.M Abu, Ejamich F.K. Bender, and R.N.Eicher , Natural Resources in Jordan, Ministery of Energy and Mineral Resources (1988) , pp.148-150 Cited in Natasha Beschorner *op.cit.*, p. 16.
28. Ibid.

the way to the Hula Valley in Palestine. The Hasbani river is the branch of the Jordan river which passes through Marjuy'un Valley[29]. The Litani, which flows in the south of Lebanon is the most important river in the Republic of Lebanon. A wholly national river, the Litani is 170 km in length and has narrow ridge and width approximately 6 km (See Fig-3) The Litani basin is divided into three parts: The Upper Basin lies in Biqa Valley of eastern Lebanon. The Middle Basin starts near Qir'un, an area of rugged terrain, where the southern ends of the Lebanon Mountains and Mount Hermon meet. The river itself flows in a deep gorge. From Nabatiyah, the river turns westward and enters the lower basin. Then it flows to the sea through the Galilean uplands, which is an area of low hills with steep slopes.[30]

Litani river flows within Lebanon and drains not far from Israel. It rises in Bekaa Valley, a short distance west of Baalbek and it flows south between the Lebanon in the west and the anti-Lebanon in the east.[31]

The basin covers an area of 2,290 square kilometre that separates the Litani from the Hasbani river, a branch of Jordan. Approximately 700 MCM of water flows in Litani per year, of which the Upper Basin contributes 325 MCM annually, the Middle Basin adds a net flow of 315 MCM and the Lower Basin 60 MCM. The source of water in the Litani Basin is precipitation. The Middle Basin has 1,000 MM to 1,600 MMY of annual rainfall. The rainfall quantity decreases to the northeast in the Upper Basin. In between Nabatiyah and the Lower Basin the annual rainfall is about 800 MMY.[32] Percipitation is highly seasonal and varies substantially from year to year. The flow of Litani is somewhat less seasonal because of snow storage and ground water storage. Most of the annual flow of about 60-65 per cent occurs during a four month period from January to April. About 15 per cent occurs during May and June, 12 per cent during July to October and 10 per cent during November and December. Hence, reservoirs are very sig-

29. Khalil.A.Khalil, *The War of Lebanon and Crisis of the Arab Revolution* (Beirut: Centre of Socialist Study of Socialist prograssive Party , No-2, 1977), pp.11-106.
30. James Hudson, " The Litani River of Lebanon: An Example of Middle Eastern Water Development", *Middle East Journal,* Vol .25, No.1 (Winter1971), pp. 1-4.
31. Arnor Soffer, " The Litani River: Fact and Friction ," *Middle Eastern Studies* , Vol.30, No.1 (January 1994), p. 963.
32. Thomas Naff and Maston , *op.cit.*, p .63.

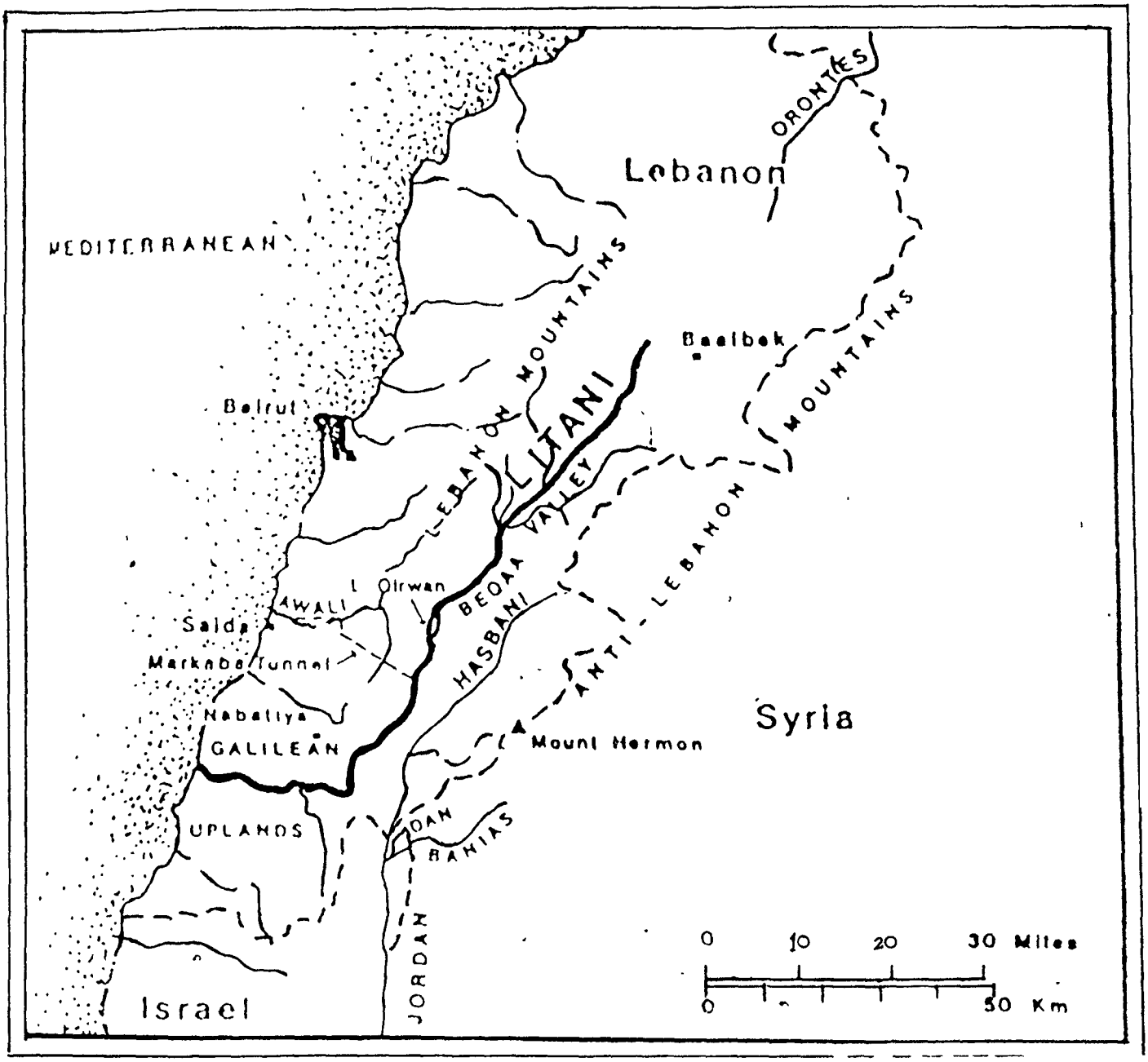

Figure 3 : Litani River With Major Water Projects

Source : Middle East Research Institute (Naff and Maston) 1984

nificant for the development of the Litani's water resocurces. They provide the storage necessary to dam the cyclical fluctuations in water availability. Litani Basin is only region which is relatively well endowed with surface and ground water resources. The five major uses of the Litani water are: household and businesse, industrial, hydroelectric power, cooling water for steam electric power plants and irrigation. The first four are primarily important to urban users and largely non-consumptive in nature. Hence, they have greater opportunity for reutilization.[33] Redistribution of Litani water is very significant for the development and it was undertaken to provide hydropower. At Markaba water of the Litani is diverted to the Awali through a tunnel. The total annual flow at Markaba is 520 MCM. From Markaba, 25 MCMY water comes into the Litani to y weather demands of the Qasimiyah Project. The remaining water goes through a tunnel to the Awali, making it the second largest river (645 MCMY) in Lebanon. Thus on the Litani below Markaba, there is 25 MCMY from Qasimiyah plus 120 MCMY of inflow between Markaba and Khardali, for a total of 145 MCMY at Khardali. Inflow from the arid region below Khardali of 60 MCMY provides 205 MCMY to the Lower Litani.[34]

The Litani Project is multipurpose in nature and hence beneficial for both agricultural and industrial utilization. Lebanon consumes approximately 900 MCM of water every year. Of this 185 MCM is for domestic use, 35 MCM for industrial use and 670 MCM for irrigation purposes.[35] The projected increase by the turn of the century is 1,700 MCM including 450 for domestic use, 120 for industrial use and 1,120 for the agricultral sector. Litani is intensively exploited for Hydro Electric Power (HEP) generation but its relatively low salinity level, less than 20 mg/1 makes it an attractive source of drinking water too. Since 1950's studies were prepared for a comprehensive Litani development project to develop HEP and irrigate large areas of the south to improve the standard of living of Shia population. The Litani Valley authority claimed that 80 per cent water of Litani were still not being utilized. Currently, plans are being considered to divert the Litani at its source, in the Beqa Valley and to build a dam at Basri (120 MCM) and at Khardali which at present is located within South Lebanon

33. Ibid., pp. 68-69.
34. Ibid., p.67.
35. Natasha Beschorner, *op.cit* , p.18.

Security Zone[36].

3. THE EUPHRATES RIVER

The main source of water in Euphrates-Tigris Basin is Euphrates river. It is an international river, which flows through Iraq, Syria, Turkey and some part of Iran. These riparian states are sharing the water of Euphrates and its tributaries. The Euphrates is 1480 miles/2333 kilometres long from the confluence of the Karasu and the Murad Suyu to Basra. It rises in the mountains of southern Turkey and flows in a south easterly direction through Syria and subsequently into Iraq.[37] The Euphrates joins the Tigris in its lower course at Qurna, to form the waterway known as the Shatt-al-Arab (See Fig.-4). The Euphrates passes though Nassiriya and Suqash Shuyukh before it enters Hammara Lake. The total flow of Euphrates river is not as great as that of the Tigris.[38]

The Euphrates is Syria's largest river. Within Syria, three main tributaries feed into it; each year the Sajur contributes 125 MCM, the Balikh 100 MCM and the Khabur some 1900 MCM. Syria was the first of the riparian states to try extensively to control the flow of the Euphrates. The main stream of Euphrates is formed by the junction of two principal arms, the Karasu which has a length of 280 miles/450 kilometres and the Murad - Suyu which is 400 miles/650 kilometres long.[39]

The Firat is the major stream of the Euphrates in Turkey. It has four chief tributaries the Karasu, the Murad, the Munzur and the Peri. After leaving Turkey, the Euphrates has one large tributary the Khabur, which joins the main stream in Syria. The waters of the Euphrates and its major tributary the Khabur, are used primarily for agricultural purposes in Syria.[40] The water resources of the Euphrates river have been almost fully developed since 1970's by the construction of large dams at Keban, Karakaya, Ataturk

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36. *Jerusalem Report*, 12 March 1992, p.24.
37. E.D. Vamus , A.L Furat-Furforiyus, *Encyclopedia of Islam II* (Nether Lands: Copy right 1965 by E.J.Brill, Leiden), p.945.
38. Shahin, *Review and Assessment of Water Resources in the Arab Region Water International* (Water of International Association, 1989). Vol.14. pp.207-208.
39. Peter Beaumont, et.al., The Middle East: A Geographical Study (London: David Utton Publishers, 1988),Cited in Murakami Masahiro *op cit* , pp 36-37.
40. Shahin; *op.cit.*, pp.207-209.

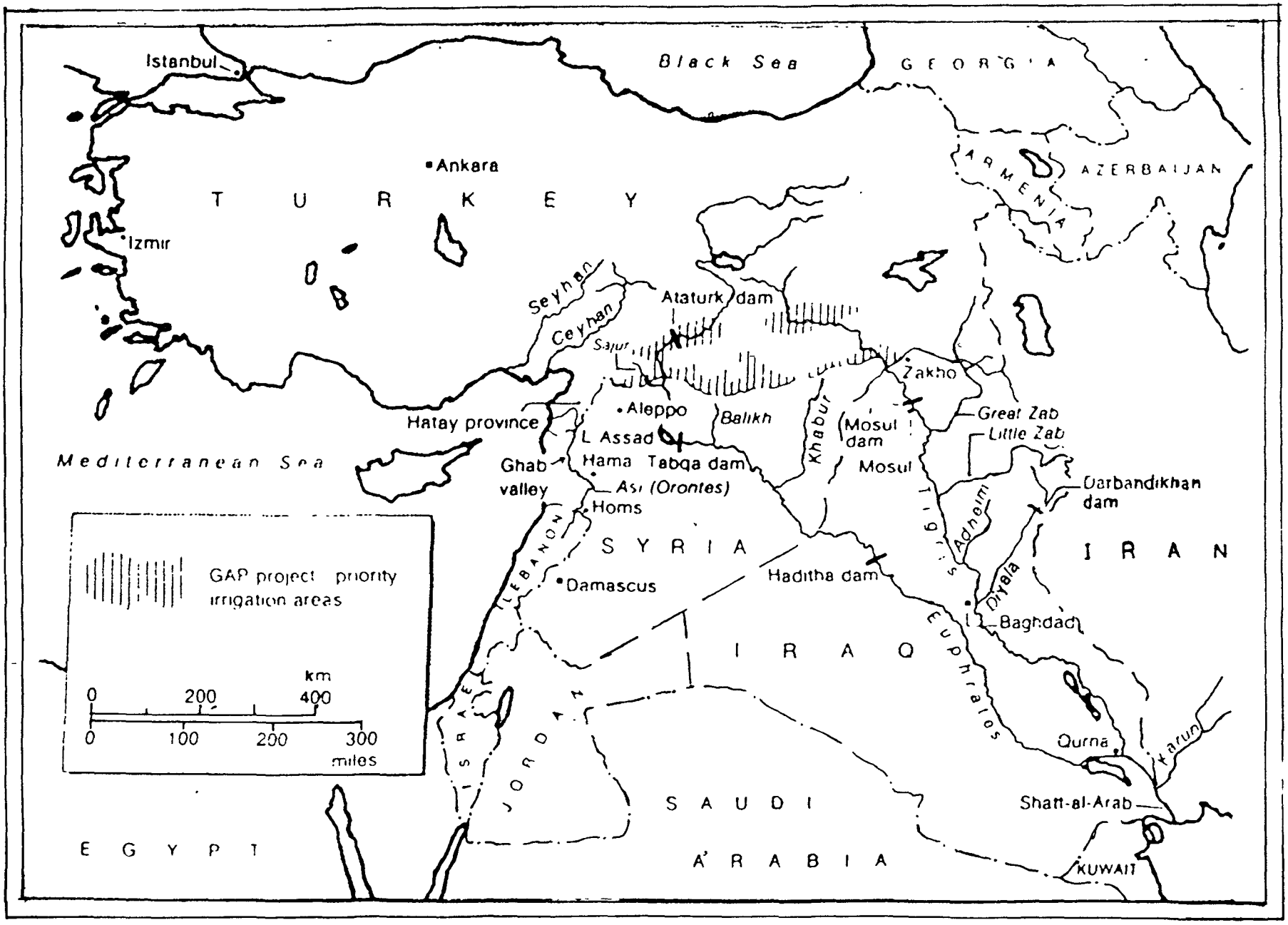

Figure 4 : The Tigris – Euphrates Basin Region

Source : Natasha Beschorner A delphi Paper 273 ,1993

and the Tabqa on the Upper and Middle reaches of the main stream.[41]

The Euphrates has a mean discharge of 31, 820 MCMY. The annual discharge varies from 16,871 MCM to 43,457 MCM. Maximum discharge is 164,000 MCM per annum.The melting of winter snow in the uplands of Turkey releases large quantities of water into the river to produce a discharge peak during April and May. The Euphrates carries as much as 6,100 ppm silt by weight and it is deposited in the inland delta. The salinity of the river increases from 160 to 525 ppm over the seasonal cycle as measured at Samama and Qurna. The lower portion of Euphrates and Shatt-al-Arab are facing severe problem of salination.[42]

The Euphrates and its tributaries drain an enormous basin, 444,000 sq km in area of which 28 per cent lies in Turkey, 17 per cent in Syria, 40 percent in Iraq and 15 per cent in Saudi Arabia. Approximately 88 per cent of the average annual flow is generated within Turkey and the remaining 12 per cent within Syria.[43] After flowing for 440 kms through Turkey the river enters Syria where it is joined by the Balikh and Khabur. The area from which the Euphrates is fed is virtually confined to the mountain of north Turkey.

4. THE TIGRIS RIVER

The total length of Tigris is 1,718km. The Tigris rises in the mountains of south eastern Turkey and is joined by various large branches in Turkey and Iraq. It flows directly into Iraq from Turkey. The river first passes through the border village of Fiesh Khabur and then it flows through Fatha which separetes Hamrin and Makhood uplands. There are narrow flood plan and well defined snowy banks in the area of Tigris. It has four main tributaries, all of which unite with the main stream in Iraq. The Great Zab originates in the Turkish high lands and joins the Tigris [illegible] city of Mamood.[44] This is the major tributary of the Tigris and 33 per cent of water flowing in the trunk

41. Murakami Masahiro, *op cit.*, p. 36.
42. Naff and Maston, *op cit.*, p . 86.
43. Ibid. p.83
44. Encyclopedia of Islam , *op cit.*, p . 947.

river is brought by the Zab Kabir . The Lesser Zab and Diyala originate in Iran. All of the catchment of the Adhaim, which is the smallest stream in Iraq. It is a seasonal tributary. On the eastern bank of Tigris between Baghdad and Mosul there are many small streams which descend from the Zagros ranges.[45]

The Tigris carries an average of 42,230 MCM of water per annum.The minimum discharge is estimated to be 5,140 MCMYand maximum 440,000MCMY. The Tigris effluent is due to direct surface runs from mountain torrents. The lower Tigris carries more silt because it is closer to the sediment source.[46] During times of flood, the Tigris has received as much as 20,000 ppm silt by weight. The Tigris moves annually 40,000,000 MCM of sediment past Baghdad, of which only a tenth reaches the Persian Gulf.[47] The basin formed by the Euphrates and Tigris includes Turkey, Syria, Iraq and Iran. Between the Upper Tigris and Euphrates lies the region known as the Jezirch. It is bounded on two sides by the rivers and on the north by the fold ranges of Asia Minor. The total length of the Tigris-Euphrates is approximately 4,051 km. The rivers originate from widely separate sources in the Guneydogu Toroslar and Zagros mountains, each deriving the bulk of water from winter rains and snow.[48] The Shatt-al-Arab is formed by convergence of Euphrates and Tigris rivers near the head of the Persian Gulf. It is a broad navigable waterway, fringed by a belt of palms for a depth of 1-4km behind which occur masses of tall reeds sometime more than 6 metre in height. The Euphrates and Tigris lowland consists of valleys and forms associated with fluvialite deposition; such as Lagoons and marsh bordered lakes, channels, embarked rivers and course with oxbow. The whole area is extremely flat, with a fall of only 4cm per km over the last 300km of the Euphrates and under 8cm per km along the Tigris.

The two rivers drain 808,000sq km. The basin is located in the mountains of the Turkey and Iran and some of it lies in the desert of Syria and Iraq.[49] Geographically; both rivers have carried heavy content of silt from the highlands during the flood sea-

45. Marakami Masahiro ,*op .cit.*
46. Naff and Maston ,*op .cit* , pp. 86-87.
47. Ibid.
48. Encyclopedia of Islam, *op cit.*, p . 947.
49. Marakami Masahiro, *op .cit.*,

sons. However, little of this sediments reaches the sea, but rather it is deposited across the plain. It is useful for agricultural development. A large area of the plain is irrigated with water of Tigris and Euphrates to support crops of wheat, barley, milllet, rice and dates[50].

CONCLUSION

West Asia is an underdeveloped region and is facing the problem of water scarcity. The climate is largely arid or semi-arid with average annual rainfall levels of less than 250 MMY. West Asia is also a cyclone prone area. Cyclones come from the west, cross over the Mediterranean Sea and enter West Asia. Some areas of the region which are nearer the Mediterranean Sea, experience a special type of climate called the Mediterranean Climate. The winters are mild, summers are warm and there is rainfall during the winter season. Throughout the region there is an acute scarcity of water. Only in parts of north-eastern Turkey and north-western Iran there is surplus water supply. Smaller areas of high water surplus occur along the high land regions of Turkey, the higher parts of the Elburz mountain in Iran, along the coastal strip of Syria and the Lebanon and the Black Sea coast of Turkey. The surplus water of northern region is transported through very great distance into areas of severe shortage of water by river systems and ground water reservoirs. For instance, the Tigris and Euphrates Rivers transport the surplus water into the intensively arid regions of southern Iraq.

The West Asian region can be divided into three major river basins; the Jordan Basin, the Litani Basin, the Euphrates-Tigris Basin. The Jordan River is the major source of water in Jordan Basin. It is fed by headwaters and tributaries rising in Israel, Jordan, Syria and Lebanon. The Jordan is 156 miles long of which 73miles is under Israeli occupied territory and the remainder in Syria, Lebanon and Jordan. The total flow of water of Jordan river is 1880 million cubic meter annually. Of this 77per cent rises in three Arab states and 23per cent in Israel. The northern headwaters of the Jordan have three important tributaries; Hasbani in Lebanon; the Dan in Israel and Baniyas in Syria. The Yarmuk river is a major tributary of the Jordan river. Its basin covers an area of

50. Naff and Maston, *op cit*, pp. 86-87.

7,252sq kms. of which 1,424sq km is located within Jordan and 5,828sq km within Syria.

The Yarmurk's mean annual discharge of 400 MCM flows in to the Jordan river. The Jordan here flows via the deepest subaerial portion of the Rift Valley to pass the Dead Sea at 398 meter below sea level, which is the lowest point on the surface of the Earth. Jordan is shaped into a shallow valley along the lake Tiberias and the Dead Sea, which it meanders for about 320 km in broad loops.

Ground water inflow has an important role in the discharge of Jordan river. Upper Jordan and headwaters of Yarmuk are major sources of groundwater. The Jordan Basin includes Israeli captured territories-West Bank, Gaza Strip, and the Golan Heights. The Jordan system discharge an average annual flow of 1,850 MCM into the Dead Sea. Generally high quality of water is received by the Jordan's headwaters. As the Jordan proceeds down into the Rift Valley toward the Dead Sea it becomes saltier.

The Litani, which flows in the south of Lebanon is the most important river in the Republic of Lebanon. The Litani is 170 km in length and has narrow ridge and width about 6 km. The Litani Basın is divided into three partrs: the Upper Basin the Middle Basin and the Lower Basin. The Basin covers an area of 2,290 sq. km that separates the Litani from the Hasbani river, a branch of Jordan. Approximately 700 MCM of water flows in Litani annually, of which the Upper Basin contributes 325 MCM, the Middle Basin adds a net flow 313 MCM, and Lower Basin 60 MCMY. In the Litani, precipitation is main source of water. The Middle Basin has 1,000 MM to 1,600 MMY of annual rainfall. The rain quantity decreases to the north-east in the Upper Basin. The Lower Basin has an annual rainfall of 800 MMY. The Awali river is also an important source of Lebanon's water.

The major source of water in Euphrates-Tigris basin is Euphrates River. The Euphrates-Tigris Basin is located primarily in three countries-Turkey, Syria and Iraq. The length of Euphrates is 1,480 miles from the confluence of Karasu and Murad-Suyu to Basra. It rises in the mountains of southern Turkey and flows in a south-easterly direction through Syria and subsequently into Iraq.

The Euphrates joins the Tigris in its lower course at Qurna, to form the water-way known as the Shatt-al-Arab. The total flow of Euphrates river is not as great as that of the Tigris. The Firat is the major stream of the Euphrates in Turkey. It has four major tributaries, the Karasu, the Murad, the Munzur and the Peri. After leaving Turkey, the Euphrates has one large tributary, the Khabur, which joins the main stream in Syria. The Euphrates has a mean discharge of 31,820 MCMY. The annual discharge varies from 16,871 MCM to 43,457 MCM. The maximum discharge is 164,000 MCM per annum. The Euphrates carries as much as 6,100 ppm silt by weight and it is deposited in the inland delta.

The Tigris rises in southern Turkey and flows directly into Iraq from Turkey and the total length of Tigris is 1,718 km. It has four main tributaries- The Great Zab, the Lesser Zab, Diyala and Adhaim. The Tigris carries an average of 42,230 MCMY of water. The minimum discharge is estimated to be 5,140MCMY, and the maximum 440,000 MCMY. The lower Tigris carries more silt because it is closer to the sediment source. During times of flood, the Tigris receives about 20,000 ppm silt by weight. Tigris and Euphrates drain 808,000sq km. The basin is located in the mountains of the Turkey and Iran and some of it in the desert of Syria and Iraq.

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CHAPTER:II

CONFLICT OVER RIVER WATERS: HISTORICAL BACKGROUND

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CONFLICT OVER RIVER WATERS: HISTORICAL BACKGROUND

Since time immemorial, the Jordan River has been a symbol of life and peaceful co-existence in West Asia. As water comes down the southern slopes of Jabel-el Shaikh, it stops for a time in Lake Huleh and the Sea of Galilee and then it meanders southward through the Jordan Valley into the Dead Sea. All through history people have lived and worked together on the land of River Jordan and along its banks, without any tension. However, with the passage of time, the situation began to change. The emergence of Zionism demanding exclusive control over historic Palestine sowed the first seed of discord in the region.[1]

1. BACKGROUND TO THE CREATION OF ISRAEL

In 1897, Theodor Herzl proposed a Jewish State in which Jews could live, free from oppression. The Jewish problem was not religious or social; "The Jews were" according to Herzl, "a nation without a land[2]". On 27 August 1897, Herzl convened the First Zionist Congress at Basle. The congress endorsed the call for a Jewish home in a resolution, which came to be known as the Basle Programme. It stated that "the aim of Zionism is to create a home for the Jewish people in Palestine secured by public law."[3]

The main objectives of this programme were: The promotion of the colonisation of Palestine on suitable lines by Jewish agricultural and industrial workers; the mobilization of Jewish people scattered all over the world by means of appropriate situation

1. Edward Rizk, *The River Jordan* (New York: Arab Information Centre ,1964), pp.5-7.
2. Samir N. Saliba, *The Jordan River Dispute* (The Hague: Martinus, Nijhoff, 1968), p.4.
3. Don Peretz, *The Government and Politics of Israel* (Colorado: Boulder, Westview Press, 1983), p 19

local and international; the strengthening and fostering of Jewish national sentiments and consciousness, preparatory steps towards obtaining government consent, where necessary to the attainment of the aims of Zionism".[4]

The Zionist Programme required an imperial power to act as an instrument of 'Public Law' for its implementation. Herzl began offering Jewish services in return for the realisation of this goal. For instance Herzl offered help to the sultan of Turkey, Abdul Hamid, in reorganising his financial affairs in return for assistance to Jewish settlement in Palestine. To the German Kaiser, Wilhelm II, 'The Zionist leader offered help to their interests in the Near East. Similar offers were made to the Russian Czar, The King of England and the Holy See.[5]

The British Foreign Secretary, Joseph Chamberlain, welcomed the suggestion and offered a place in East Africa. The majority of the Zionists rejected this proposal on the ground that the place was not appropriate for their sentiments. Therefore, the idea was opposed by the Fifth Zionist Congress.

Herzl died on 3 July 1904 without fulfilling his life's dream. Under the leadership of Chaim Wiezmann, who succeeded Herzl, the Jews intensified their compaign.[6] Between 1904, the year of death of Herzl, and the beginning of First World War nothing significant occurred. As the First World War broke out, Britain entered into negotiations with the Sharif Hussain of Mecca to secure assistance in the war against Turkey in a long exchange of letters known as the, McMohan correspondence. The Arabs agreed to side with Britain, in the war on the condition that the British would openly recognize Arab aspirations. Sir Henry McMohan pledged England's support to independence of Arabs. In his correspondence, Sharif Hussain unequivocally demanded the independence of the Arab countries, specifying the boundaries of the territories which clearly included Palestine. The Arabs argued that they had been promised Palestine by the British, in return of Arab help against the Turks. Unfortunately the correspondence was not perfectly clear as to the area of Arab independence. In the meantime, Britain made two other agreements which were incompatible with their

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4. Shah Abdul Qayyum, *The Arab Israeli Conflict* (Aligarh: AMU Press, 1975), pp.6-9.
5. Khalid El Sheikh, *Palestine Human Tragedy* (New Delhi: Vani Publication, Published by Arab States), pp.10-11.
6. Fred J. Khouri, *The Arab-Israeli Delimma* (New York: Syracuse University Press 1976), pp.7-8.

pledge to the Arabs[7].

One of them was Sykes-Picot agreement named after the British negotiator, Sir Mark Sykes and his French counterpart Charles Picot signed in May 1916. It constituted a breach of promises made to the Arabs. This treaty was an Anglo-French-Russian understanding which promised the internationalization of Palestine under the combined authority of three members of the treaty. Sharif Hussain wanted an explanation but the reply given was vague. The other was the Balfour Declaration of 2 November 1917 which was in favour of a Jewish homeland in Palestine and constituted a betrayal to the Arab aspiration. It was addressed by Arthur Balfour, the British Foreign Secretary to Edmund de-Rothschild in 1917, who was a prominent British Zionists leader. It say;

> "His Majesty's Government favours the establishment of a National Home for the Jewish people in Palestine and will use their best endeavours to facilitate the achievement of this objective it being clearly understood that, nothing shall be done which may prejudice the civil and religious rights of existing non-Jewish communities in Palestine or the rights and political status enjoyed by Jews in any other country".[8]

This declaration, Britain sowed seeds of prolonged conflict and unending problems and suffering for the people of Palestine. Lord Grey, the former Liberal Foreign Secretary exposed the inherent contradictions in the Balfour Declaration and pointed out in the House of Lords in March 1923. "A Zionist home my Lords, undoubtedly means or implies a Zionist Government over the district in which the home is placed, and it's population is 93 per cent Arab. I don't see how can you establish a Zionist Government without prejudice to their civil rights".[9]

By 1918, when the rest of Palestine was captured from the Turks, a national conference representing several Jewish settlements elected Weizmann and his Russain

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7. Khalid El Sheikh, *op.cit.*, p.10.
8. Quoted in Samir N. Saliba, *op.cit.*, pp.4 -5.
9. J.R. Gainsborough, *The Arab Isareli Conflict: A Political Legal Analysis* (USA: Gower Publish ing Company, Limited 1986), p.6.

Zionist friend Nahum Sokolow, to represent them at the Paris Peace Conference. At the Paris Peace Conference in 1919, negotiations were held regarding the boundaries of Syria and Palestine and the assignment of the Syrian Mandate to France and the Palestinian Mandate to Great Britain. The latter opposed a mandate for Palestine, that did not retain Jordan within its borders. In this conference, the British Prime Minister, David Lloyd George, emphasized, that Great Britain would not approve a mandate for a Palestine that would merely include the barren rocks of Judea, which might at any moment be rendered a desert through the cutting off of waters of the same. Furthermore he stated that the waters of Palestine were essential to its existence.[10] Without these waters, Palestine can be a wilderness. On the other hand, those water were not suitable for use to any one holding Syria. Britain was less interested with regard to the northern boundaries of Palestine (See Fig-5). The issue that Palestine's northern limit should be on the Litani River or further north near Sidon or any of a half a dozen more places as outlined in various Zionist plans was of little importance to the British, once they had succeeded in placing strategic depth between the Suez Canal and the French forces in the Levant. It was of course, a matter of tremendous importance to the Zionists leaders, who had hoped to retain Litani waters within Palestinian boundaries.[11]

The Sen Remo Conference, was held in April 1920, was appointed to finalize a settlement with Turkey and to allocate mandatory responsibility in Levant. It endorsed the idea of Jewish homeland and instructed the British administration in Palestine to create a home for Jews in Palestine. [12] Under this agreement Turkey expressly renounced its rights over the Arab territories and introduced mandatory government for Palestine, Syria and Iraq which had been decided upon by the Allied Powers. The new Turkish nationalist Government ratified the treaty of Severes and a new peace treaty was substituted which was signed at Lausanne in Switzerland on 24 July, 1923. In 1928 the establishment of a Jewish Agency to manage Jewish interests in Palestine caused

10. *The Jordan Water Problems* (An Analysis Summery of Avialable Documents) Americans Friends of the Middle East (Washington D.C: Inc, 1964), pp.4-6.
11. David Lloyd George, *The Truth About the Peace Treaties* (London: 1938), The Israeli Water Plan Background Notes on Current Themes, No. 35 Ministry of Foreign Affairs (December 1959), p.1.
12. Neville Barbour, *Nisi Dominus: A Survey of the Palestine Controversy* (London : George G. Harrap, 1946), p.103.
13. *League of Nations Treaty Series*, Vol XXVIII, p.12.

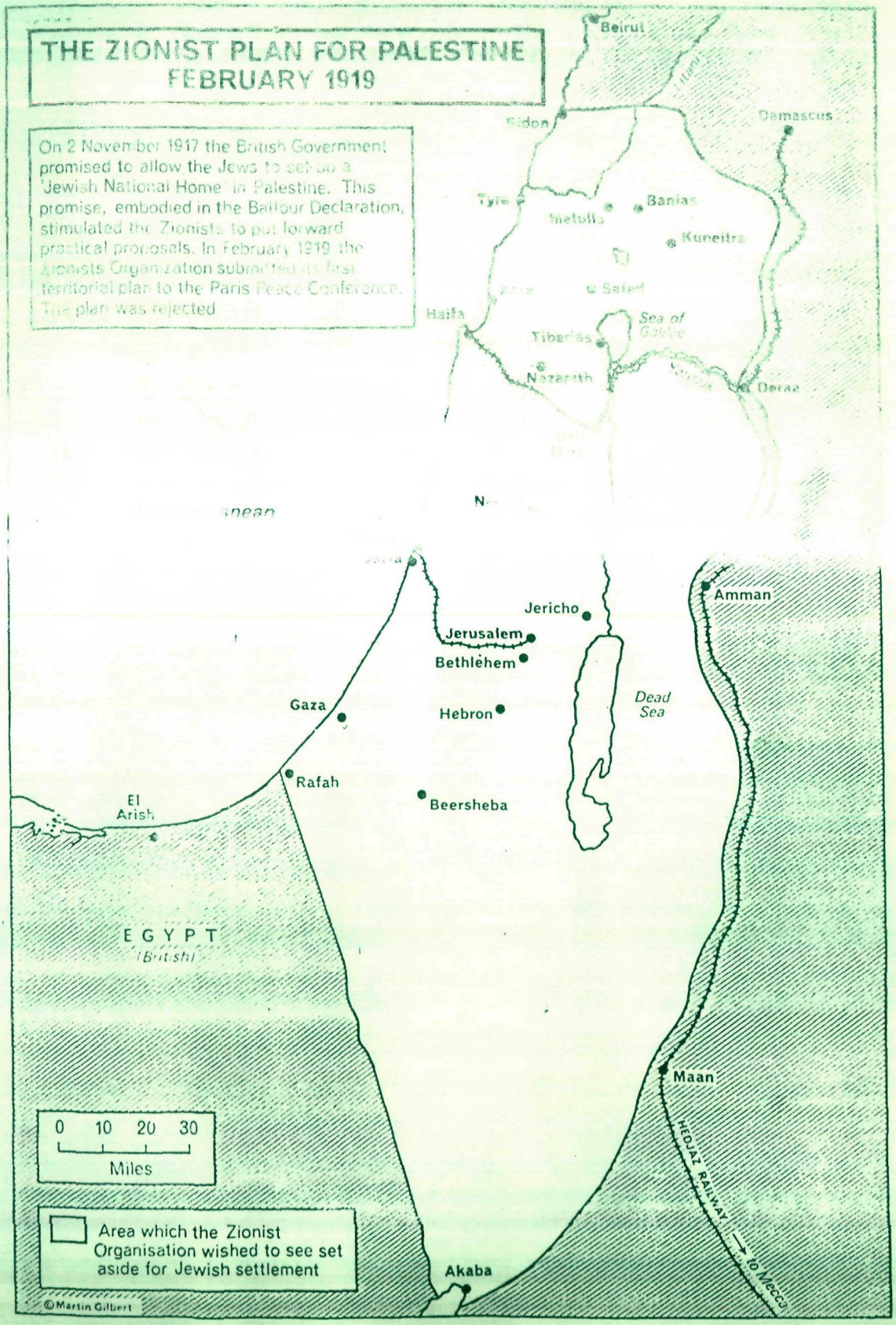

FIGURE - 5

Source : Martin Gilbert, The Arab-Israeli Conflict (its History in Maps) 1979

grave concern among the Palestine Arabs.[13] The following year there was a friction between Jews and Arabs concerning the farmer's rights to pray at the Western Wall of the old Jewish Temple in Jerusalem. On 23 August 1929, Arabs attached Jerusalem and its neighbourhood. A commission appointed by Sir Walter Shaw in its report recommended that restrictions be placed on Jewish immigration and the purchase of land from Arabs.[14]

In April 1936 an Arab Higher Committee (AHC) was formed to unite the Palestine Arabs in opposition to the Jews. The AHC gave a call for mass strikes and demonstrations against the continued presence of British troops and Jewish settlements. After six months of continued total strikes, which paralysed the life in Palestine in November 1936, a commission, under Robert Lord Peel arrived to study the situation.[15]

Due to various factors, the Royal Commission concluded that the Palestine Mandate was not workable. These factors were; the Jewish immigration, purchase of Arab lands by Jews complete absence of Political cooperation between the Arabs and Jews. The commission admitted that the Palestinian reaction was quite logical as they could not obviously accept the creation of a national home for the Jews in Palestine. Among the Arabs, Emir Abdullah, who was ruler of Transjordan, wanted a partition. The Royal Commission recommended partition as a solution for settlement. The commission stated that: "Partition seems to offer at least a chance of ultimate peace"[16] which could not be seen in any other plan.

In July 1937 the recommendations of the Royal Commission were accepted by the British government. But the Palestinians rejected these recommendations and the revolt mounted, increasing the demand for full independence and the replacement of the mandate by a treaty between Britain and independent Palestine.

In 1938 the Woodhead commission was appointed by the British Government under Sir John Woodhead to consider the Partition Plan as suggested by the Peel

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14. *White Paper of 1930* (The Passfield White Paper) Cmmd. 36 92, House of Commission, Secssional Papers, 1930- 31,Vol.16.
15. J.C Hurewitz , *The Struggle for Palestine* (New York: Schocken Books 1979), pp. 66-67. see also Khalid-El-Sheikh, *op.cit.*, pp.35-36.
16. *Palestine Partition Commission Report,* Comnd. 5854 (1938), pp. 18-19.
17. R. Higgins, The Place of International law in the Settlement of Dispute of by Security council: *Amrican Journal of International Law*, Vol. 64, (1970), pp.1-8.

Commission. This Commission rejected the Peel report as being impractical.[17] In the London conference, that commenced on 7 February 1939, the Palestinian delegation condemned the British policies towards Palestine, called for Palestine's National independence and for scrapping the Balfour Declaration, termination of the mandate and halting the Jewish immigration. This conference could not reach an agreement because of differences between the Palestinian and Zionist delegations. Later in May 1939, Britain decided to present its unilateral policy which came to be known as the MaDonald White Paper. In this White Paper the British Government disclaimed any intention to establish a Jewish State, rejected independence of Palestine as an Arab State and envisaged the termination of the Mandate by 1949 after granting independence to Palestine in which both the Palestinians and the Jews would share the government.[18]

When the War ended in 1945, Jewish attitude was seen to be anti-British in varying degrees. Prime Minister Churchill himself, once a strong friend of the Zionist cause, was deeply shocked when the Stern Gang in 1944 assassinated his friend, the British Minister of State for the Middle East, Walter Edward Guinness, the First Lord Moyne. England was unwilling to continue its mandate over Palestine and requested the United Nations to handle it.[19]

The UN General Assembly appointed a special committee on Palestine. In August 1947 the majority of United Nations special Commission on Palestine (UNSCOP) recommended a plan Partition Palestine into Arab State and a Jewish State with economic union, and an international trusteeship for the city of Jerusalem.[20] On 29 November 1947, General Assembly voted in favour of UN Resolution 181(II), which called for the creation of a Jewish State and Arab State within a Partitioned Palestine. The British mandate over the area was to end 15 May 1948 and the two states were to be established by 1 July 1948. Jerusalem and Bethlem were to become corpus separatum under UN jurisdiction

The passage of the UN Partition Plan immediately led to the first Arab Israeli War, thus transforming the Palestinian Jewish struggle in and over Palestine into an

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18. See Report of Commission Reflected to as the *McDonald White Paper* Cmd, 6019 (1939).
19. Shah Abdul Qayyum, *op.cit.*, pp.16-17.
20. Howard M. Sachar, *A History of Israel, From The Rise of Zionism to our Time* (Oxford:Basil Backwall, 1976), p.258. and see also.

Arab-Israeli conflict. The Arab intervention was the result of genuine support for the Palestinian Arabs. This phase of the war lasted eight months, in the course of which a dramatic change occurred.[21] (See Fig.6).

The Israeli army moved into Sinai, which it had to evacuate under international pressure. In the north, the Israeli Defense Force (IDF) pushed Lebanon's army back to its border and occupied South Lebanon which Israel evacuated as part of the 1949 armistice agreements.(See Fig.7) The First Arab- Israeli War was concluded by four Armistice Agreements signed between Israel and Egypt on 23rd February 1949, between Israel and Lebanon on 23rd March 1949, between Israel and Jordan on 23rd April 1949, and between Israel and Syria on 20th July, 1949 Although the Armistice Agreements did not lead to envisaged peace treaties, they established Israel's borders with its Arab neighbours for nearly twenty years, until the Third Arab-Israeli War of 1967.[22]

(i) PROPOSED PLANS FOR THE DEVELOPMENT OF JORDAN RIVER

The potential of the Jordan river for irrigation purpose was realised as early as 1910 by the bureaucrats of the Ottoman Empire. In 1913 Gorge Franghia, Director of Jordan for irrigation and power generation. The main aim of this plan was the diversion of Yarmuk into Lake Tiberias. A canal with 100 MCM flow capacity to irrigate the Jordan Valley was to be constructed with two power plants to produce electricity for the development of Jordan Valley. Franaghia plan failed to take off due to the First World War. Severe problems cropped up in the aftermath of war as a large number of Jewish immigrants started to arrive in Palestine. The arrival of Jewish immigrants led to an increase in demand for water. In order to meet this growing demand various revised proposal for the utilization of Jordan river were putforth. In 1920 a survey was conducted for the utilization of Jordan's water and its main branch Yarmuk for irrigation and electricity purposes by the British colonial government.[23] But due to increasing tension between the Arab and Jewish people no

21. Deborah J. Gerner, *One Land, Two Peoples: The Conflict Over Palestine* (Calorado: Boulder Westveiw Press, 1991), pp.44-45.
22. Gainsborough, *op cit.*, pp.50-51.

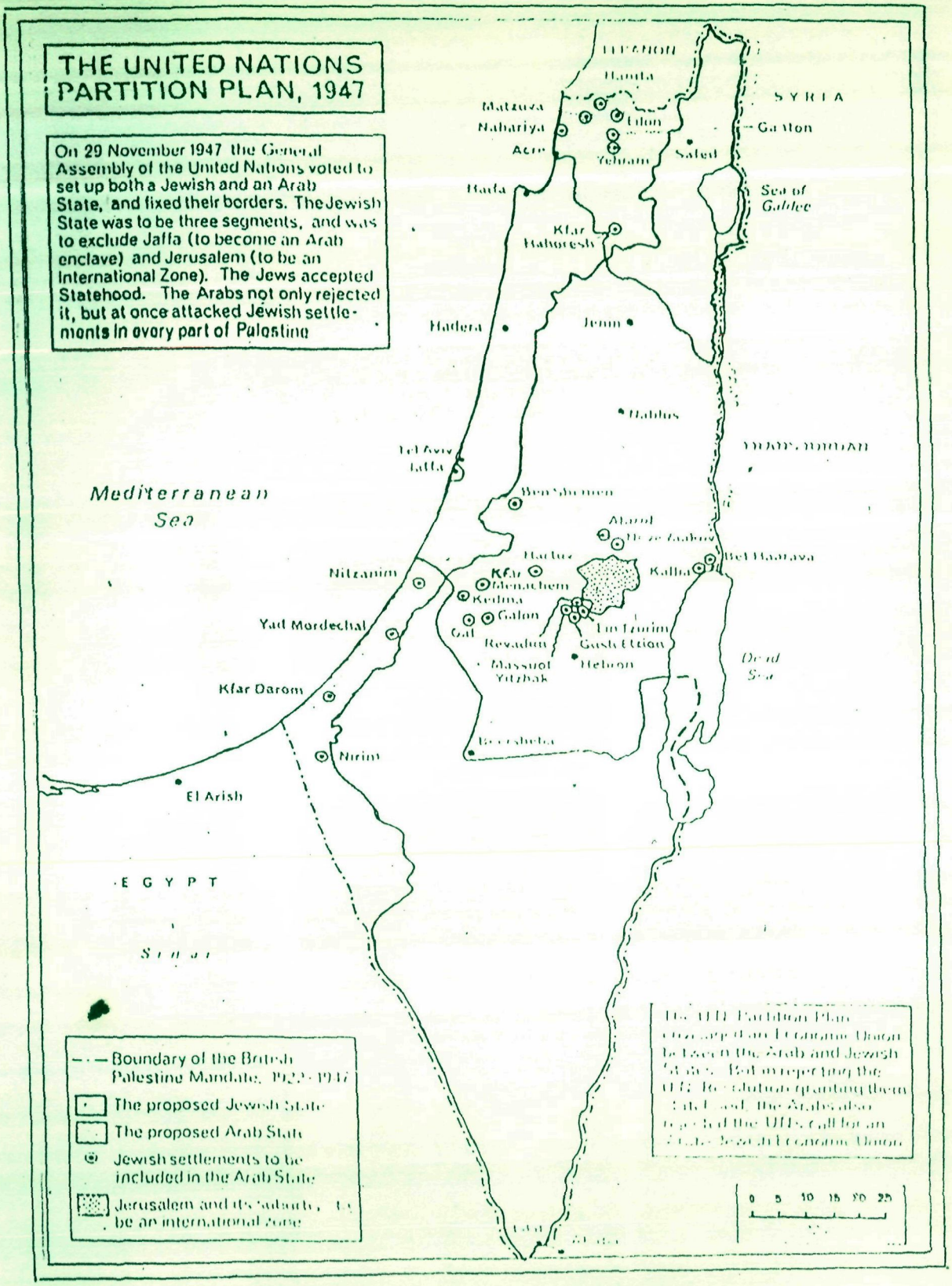

Figure : 6

Source : Martin Gilbert, The Arab-Israeli Conflict (its History in Maps) 1979

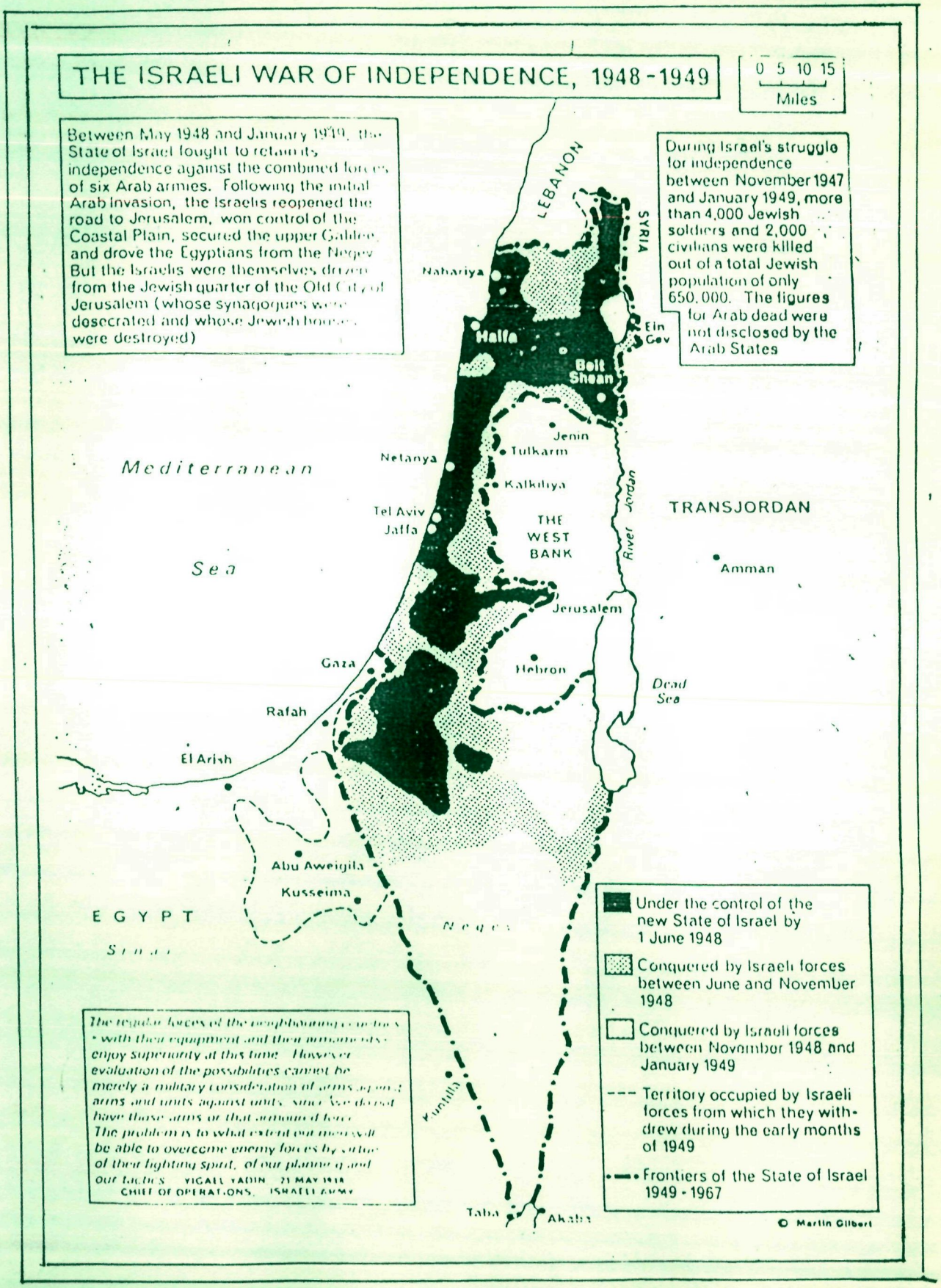

Figure - 7

Source : Martin Gilbert, The Arab-Israeli Conflict (its History in Maps) 1979

action could be taken by the mandatory Government.[24]

Two years later in 1922 Movromatis proposed an elaborate scheme to irrigate the area of Huleh and drain the marshes. Two dams were visualized for generating electric power and the construction of a canal on both banks of the Jordan. However, like the earlier plan the Movromatis plan also could not be implemented. A subsequent plan known as the Henrique plan (1928) which proposed irrigating the Yarmuk Triangle was also not approved. As Jewish immigration to Palestine increased rapidly in 1930's, the issue became more complicated.[25]

In 1939 MG. Ionides, Director of Development in the Transjordan government, submitted a report on the water resources of Transjordan and their development after a study of two years. The report recommended the construction of an irrigation canal on the eastern part of the Jordan Valley. It was to use the water of Yarmuk. In this way, 3,0364hectare (30,000 dunams) on the East Bank could be irrigated. The same canal could also irrigate land on the West Bank. In the Jordan Valley Ionides plan was the first hydrographic survey. For the flood waters of Yarmuk the report proposed Lake Tiberias as a storage reservoir (See Fig.8).[26]

It also suggested the use of Jordan waters in the Jordan's own drainage basin. In 1944, the Lowdermilk plan visualized the irrigation of the arid lands in the Jordan Valley and the utilization of the river channel for development of hydroelectric power. This could be accomplished through the diversion of the waters, of the Jordan and Yarmuk rivers. Lowdermilk calculated that it would be possible to irrigate 121,457ha (1200,00 dunams) of land, of which 62,753ha (600,000dunams) were in the Jordan Valley. The surplus water would flow by gravity to provide irrigation in the plains of Esdraelon, Beisan and Valley of Galilee. The plan also envisioned the development of hundred million kilowatt hours of hydroelectric facilities annually. Additionally, the Jordan Valley Authority would give aid for the artesian water supplies and the construction of dams for storing rain water from the Hebron Dam to the Negev. As large parts of Israel was covered by the Negev desert.[27] The development of the

23. Naff and Maston, *op.cit.*, p.30.
24. Stevens, Georgina G; "The Jordan River Valley," *International Conciliation*, No. 506 (January 1956), p.234.
25. Naff and Maston , *op.cit.*
26. Stevens Georgina G., *op.cit.*, pp.227-283.

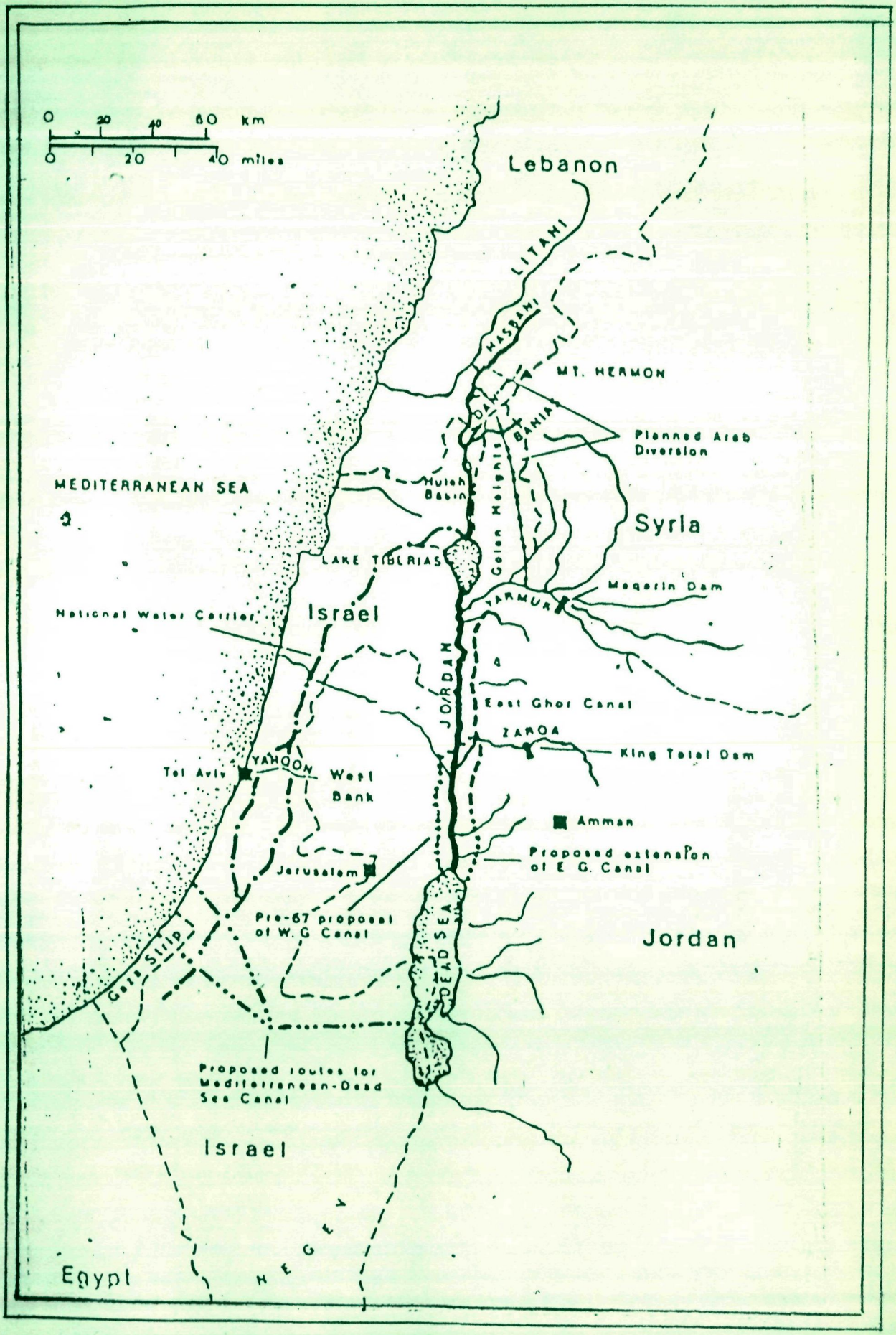

FIG. 8

Source : Samir N Saliba, The Jordan River Dispute , 1968

Negev was a critical factor as far as absorbing further Jewish immigrants were concerned. Israel, therefore, decided that a Jewish agrarian presence in the Negev would be an important symbol of the vitality of the Jewish State. The proposed dams would be used for irrigation, hydroelectric power and industrial works. The Jordan Valley is 25 miles from the Mediterranean at Haifa Bay. JVA plan provided for an open canal for 7 miles from near Haifa to Mount Carmel and a 20 miles tunnel through the plain of Erdraelon to the edge of the great gorge of the Jordan Valley. It was to have a capacity of 1,000CFS. The JVA would construct dams higher up in the hills to hold excess water.[28] The JVA also includes the use of Litani River as part of the regional plan a suggestion which was to be re-emphasized in all plan of Israel. The details of the JVA were developed by James Hays, Chief Engineer of TVA. The Hays-Savage Plan was submitted in 1948 at the request of World Zionist Organisation. The plan recommended that half of the Yarmuk waters would then be diverted into Lake Tiberias to replace the water lost from the diversion of upper Jordan.[29] The other half of the Yarmuk waters would be allocated to Transjordan but only at a subsequent stage in the plan. However, Hays says, the recovery of the remaining Jordan water must await the completion of the previous irrigation works and diversions for the river which will enable a more accurate determination of what is left in Jordan.[30]

The Lowdermilk-Halys Plan noted the possibility of tapping the Litani and diverting some of its water to the coast and Negev. This plan also took into account the development of underground water sources and proposed a dam on the Hasbani for the power generation. The plan also visualized the utilization of the upper Jordan and its summer flow in relation to Hasbani storage water for irrigation of Huleh, Aiyelet Haswaher Lower Galilee, Emek Esdraelon and Afule Beit Alfa.

The Arab-Israeli War of 1948, however, served to fundamentally alter the prospects for such a co-operative undertaking. Meanwhile during the period of 1948-1949 more than , 800,000 Arab refugees fled their homes in Palestine and went to neighbouring Arab countries. Most of these refugees went to Jordan, perhaps the

27. Walter Clay Lowdermilk, *Palestine: Land of Promise* (New York: Harpen and Bross, 1944), pp.170-175.
28. Ibid., pp.175, 180-185, 196-197.
29. Samir N. Saliba, *op.cit.*, pp.18-19
30. Ibid., p.83.

poorest of the Arab States.[31]

The McDoand Report was submitted by the Jordanian Government with the help of British firm in 1951. It was prepared by Sir MaDonald. It aimed at providing perennial irrigation for the 19,048ha (188,200dunams) on the east of the Jordan from the Yarmuk to Wadi Zerka. The main aim of this plan was the construction of a diversion canal which would flow over the Jordan's plain in the eastern side. It would be approximately 70 km long. In 1951 the British engineers published their comprehensive scheme for the irrigation of both sides of the Jordan Valley between Lake Tiberias and the Dead Sea[32].

The McDonald plan has crystallized a basic issue in the conflict relating to use of the Jordan waters; whether or not these should be used within the water shed or outside of it. In addition, provision was made for water which would be utilized for development of perennial irrigation of approximately 1,052ha (104,000 dunams) on the west side of the Jordan around Beisan in the Jordan-Yarmuk Triangle.[33] The McDonald report made apparent the conflicting positions on out-of-basin transfers held by Israel and the Jordan. In the McDonald plan, all water developed would remain in the Jordan Valley.[34]

In 1952, the Bunger plan was submitted by United States engineer, Mills E. Bunger. He visualized a dam on the Yarmuk at Maqarin dam with storage capacity of 480 MCM, 65 MCM of which would be used to irrigate land in Syria and surplus of this would be used in Jordan.[35] A new proposal was also included in which a canal to lead from the dam on the south bank of the Yarmuk to Adasiya, where a diversion dam would conduct water directly from the Yarmuk River and Maqarin southward into the East Ghor canal and almost to the Dead Sea.

A small dam across the Jordan River shortly below the Israel Jordan border to

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31. Stevens, *op.cit.*, p.246.
32. MacDonald, Murdock and Partners, " *Report on the Proposed Extension of Irrigation in the Jordan Valley,* (London:1951), pp.1-34.
33. Ibid., p.3.
34. David M.Wishart," The Breakdown of the Johnston Negotiations over the Jordan Waters", *Middle Eastern Studies,* Vol.26 (1990), p.537.
35. Cited in the *Jordan Water Problem,(* An Analysis and Summery of Available Documents), American Friends of the Middle East (Washington :1964), p.32 and see also Ghobashy, Omar Z., *Development of the Jordan River* (NewYork : Arab Information Centre,Paper 18.,1961), p.14.

facilitate the pumping of water from the river into a West Ghor canal leading to Jericho was also to be constructed. A power plant situated at Maqarin, as well as another at Adasiya with power output of 281 million kilowatts annually were also recommended. Jordan was to bear 95 per cent and Syria 5 per cent of the cost of construction and maintenance of the Maqarin dam.[36] Both the United States Technical Cooperation Administration in Jordan and UNRWA evinced great interest in the project. They joined forces with the Jordanian government and earmarked funds for the financing of the Yarmuk River scheme.

At this point however, political difficulties came into existence. Spokesmen for Israel in Washington and at United Nation point out that unilateral development of the Yarmuk would diminish the chances for any regional development of the Yarmuk River system.[37] They claimed that Israel as the lower riparian state on the Yarmuk, had a right to use these waters. As a result of these Israeli representations, work over the Yarmuk scheme was delayed.

On October 16,1953 President Eisenhower appointed Eric Johnston as a special ambassador to mediate a comprehensive plan for regional development of the Jordan River system. The plan Known as the Unified Plan, based on the Marshall plan in Europe, sought to resolve the conflict by promoting cooperation and economic stability.[38]

The technical features of the United Plan were as follows: (i) The construction of a dam on the Hasbani River in Lebanon was proposed in order to store and regulate the waters of that river. A hydroelectric power Plant would be constructed at Tel-Hai which would take the water from the Hasbani dam, use it to develop power and then return it to the main irrigation canal (ii) Canals would be constructed in order to carry the diverted waters of the Baniyas River, the Hasbani, and Tel-al-Qadi springs to irrigate areas in the Galilee hills section. Irrigation water for the Yavnell Valley would be supplied from well water system (iii) In addition, hydroelectric power facilities would be constructed on the Yarmuk River consisting of a dam at

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36. Mills E.Bunger, *Chief of Water Resources Development, TAC Jordan Feasibility of Yarmuk Jordan Valley* (n.d. Stensil No. 317, 1953): T.R Telling Director TAC Jordan, Statement of the Yarmuk Jordan (July 1952) Cited in *UNRWA Special Report on Jordan* .
37. UNRWA, Bulletin of Economic Development, *op.cit.*,p.85.
38. David M. Wishart, *op.cit.*, p.578.

Maqarin and a power canal running about 30 km to a power house near Adasiya.

Control works and canals were to be constructed for the use of perennial flows from the Wadis. It was calculated that the total area of land that could be irrigated under the plan would be 44,534ha (440,000 dunams) of which 42,105ha (416,000dunams) was Israel, 49595ha (490,000dunams) in Jordan, and 3,036ha (30,000dunams) in Syria. The quantity of water available for the irrigation purpose of these areas was estimated at 1305 MCMY, of which 879MCM of water would based for irrigation in the Arab States, and 426MCM in Israel.[39]

In January 1954, at the request of Eric Johnston and as a result of a seris of meeting and technical studies, The Arab League Political Committee (ALPC) comprising of Egypt, Syria and Lebanon was set up, headed by Muhammad Salim, Secretary-General of Egypt's National Production Council. In March 1954 the ALPC submitted a plan for the development of Jordan river water resources under the Arab plan, it was earmarked that 49,393 ha (488,000 dunams) of Jordan territory be irrigated. The plan estimated that 975MCM of water should be made available for the purpose, 146MCM more than that proposed by the Unified Plan. The break up was as follows: 287MCM of water to irrigate 23,68ha (234,000 dunams) in Israel 132 MCM of water to irrigate 12,045ha (119,000dunams) in Syria and 35MCM of water to irrigate 305,42ha (35,000dunams) in Lebanon.[40]

The Arab Plan reverted to the Bunger Plan which visualized the construction of a high dam at Maqarin in the Yarmuk basin. This would store approximately 400MCM of the Yarmuk waters which would be used primarily to irrigate land in Syria and Jordan according to an agreement signed by them on June 4,1953.[41]

In 1955 the Baker-Harza Plan for the Irrigation of the Jordan river basin was submitted to the Jordanian Government by two private American Engineering firms Michael Baker, Jr. of Rochester, Pennsylvania, who prepared a land and soil analysis, and the Harza company of Chicago which made a study of the hydrological conditions during 1953 and 1954. The plan recommended utilization of the Yarmuk and Jordan rivers water to irrigate 15,3238ha

39. Main, Charles T. Inc, *The Unified Development of the Water Resources of the Jordan Valley Region* (Boston : 1953) pp.4, 21, 27, 35 and 43.
40. *The Arab Plan for the Development of Water Resources in the Jordan Valley* (March 1954), Published in the Egyptian Economic and Political Review (October,1955), pp.42-46.
41. *United Nations Treaty Series* Vol.184 (1953) p.24.

(1,514,000dunams) in the Jordan Ghor and to provide 167 million kw of power at total cost of $116,874,000. The main intention of the plan was increased agricultural production and futuristic betterment of the Valley. The plan gave 760MCM water for the development of Jordan, 605MCM of which was to come from the Yarmuk river and Wadis in Jordan. 155MCM water was to be diverted from the Lake Tiberias. The plan also proposed the irrigation features of the project could be carried out without the Yarmuk hydroelectric power. The irrigation construction would cost $216 per dunams or $864 per acre, and operation, maintenance as well as replacement would cost $1.86 per dunums annually. The irrigation scheme would increase net farm income in the Jordan Valley by an estimated average $674,000 per annum in the first 20 years. Thus, the ratio of annual increased income to annual costs showed that the project was justified economically.[42]

The Cotton Plan was put forth by J.S.Cotton, an American engineer in 1954 and sponsored by Israel. The main point of the plan was the development and utilization of the water resources of the Jordan and the Litani river basin. It was beneficial for the full irrigation of all irrigable lands in the Kingdom of Jordan and southern Lebanon as well as Syrian lands in upper Yarmuk basin.

The Cotton plan included the following features: extra water of the Litani not required for irrigation in Lebanon estimated to be around 50 per cent flow of the river or approximately 400 MCM was to be diverted into two lakes at a point where the river flow changes from north-south to east-west, 5.5 km across Israel's border in Lebanon. From the lake a conduit would lead the water into Israel. In fact the water would be diverted through a tunnel at a point, 7 miles from the Israel border where the Litani makes a sharp westward turn towards the Mediterranean. Jordan would receive 575 MCM water per annum to irrigate 4305202ha (430,000dunams) Israel, 1,290 MCM to irrigate 18,1174ha (1,790,000dunums), Lebanon 450.7 MCM to irrigate 3,5425ha (350,000dunams) and Syria would receive annually 30 MCM of water to irrigate 3,036ha (30,000dunams). Approximately 1,412, 400,000Kwh per year of electric power would be generated implementing the Cotton Plan.[43]

In 1955 the US once again sought to revive Eric johnston's Unified Plan as neither the Cotton plan nor the Baker-Harza plan found acceptance by all the states party to settle the

42. Naff and Maston, *op cit.*, pp.40-41.
43. Israel Office of Information, *The Cotton Paln for the Development and Utilization of the Water Resources of the Jordan and Litani River Basins* (New York: February 1954), pp.1-4.

dispute. In July 1955 the plan was discussed by the Israeli Cabinet. The plan was approved by the Arab experts committee in September 1955 and was handed over for final approval to the Arab League Council. In October 1955, the Arab League decided not the ratify the Plan because of its serious potential implications and sent it back to the technical committee for further consideration.[44]

Jordan had the following major issues to resolve: the exact amount of water each basin was to receive: (ii) the degree and type of neutral supervision needed for the implementation and the overseeing of the operatin of the river system; Johnston, however, was very confident that these issue could be resolved. He submitted a revised version of the Unified Plan which called for the construction of a dam on the Upper Yarmuk River. The 300 MCM of stored water would generate 150 million kwh of electric energy per year.

In October 1955, it was reported that the Arab technical experts had approved the Unified Plan as revised, which, in its final form very much resembled the Arab Plan. Under the revised plan, Lebanon was to receive 35MCM of water from Hasbani, Syria 132 MCM Jordan of water. As for Israel, except for the above withdrawals and deliveries, the water of the Jordan river would be available for Israel's unconditional use (See Fig. 9).[45]

The Ten Year Plan of 1956 was sponsored by Israel. The main intention of this plan was to increase availablity of water during a ten year period for its 3 million people. It was based on the Hays-Lowdermilk scheme. Israel's Ten Year Plan aimed at exploitation of 700MCM of waters of Jordan river by Israel through the diversion of Jordan river resources. It would give Israel 56 per cent of the river basin's discharge. The main features of this plan was the diversion of 500MCM of upper Jordan and Tiberias waters out of the watershed to Negev in the south. Initially, Israel had planned to carryout this diversion through a canal Banat Yaccub, near lake Huleh. This scheme, the Tiberias-Negev Project, Consists of a conduit 65 miles long with intermediate reservior and pumping and booster stations.[46]

In the early 1960's tension mounted when Israel started construction of its National water carrier to bring water from the Lake Kinneret in the south to the west of country.[47]

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44. Don Peretz, Development of Jordan Valley Waters", *Middle East Journal*, Vol.9 No.4 (1955), p.409.
45. Ibid.
46. Edward Rizk, *op.cit.*, p.28.
47. Fred J.Khoury, " The US, the UN, and the Jordan River Issue", *Middle East Forum*,(May 1964), p 24.

SOLUTIONS ATTEMPTED OR PROPOSED

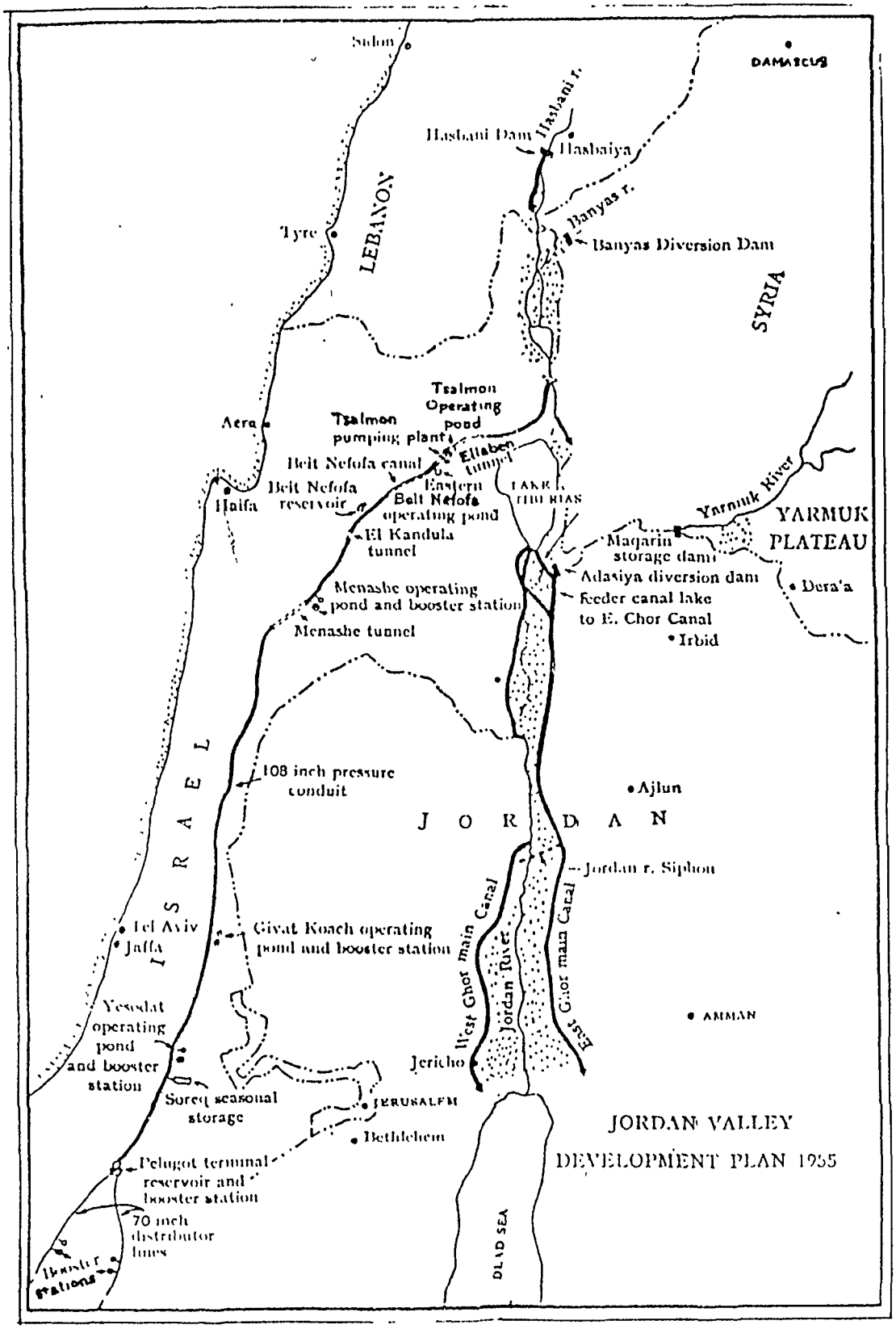

FIGURE 9
Source : Samir N Saliba, The Jordan River Dispute , 1968

This unilateral action alarmed the Arab States and they decided counter the Israeli attempts to divert the river waters.

In November 1960, the Technical Committee of the Arab League decided the following: (i) East Ghor canal would be completed and the Yarmuk water would also be stored in the river valley. (ii) Diversion of the Baniyas river by canal for irrigation lands of Syria lying to the west, south of the river as far as the Yarmuk.[48]

An Arab Summit meeting was held in Cairo in 1964 in order to coordinate a policy aimed at counteracting Israel's action of diverting the water of Jordan River for irrigation. The Jordan river's headwaters originate in Lebanon from the Wazzani and Hasbani rivers.[49] Members of the Arab Summit, therefore, recommended that these waters be diverted to Jordan and Syria while a United Arab Command be established along the Lebanese-Israeli forntier for the purpose of guarding against any Israeli attack. In this Arab Summit, the Kings and Heads of State of the Arab States adopted measures designed to safequard Arab rights threatened by the Israeli Project.[50] (See Fig. 10)

After a second Summit Conference the Arab States finally decided to divert the sources of the Jordan River. This was to be done by the two storage dams on the main tributary of Jordan, the Yarmuk which originates in Syria. This would divert waters into Syria and Jordan, thus preventing Israel a lower riparian state, from receiving any of the Yarmuk waters.[51] Work began on the Arab League's plan and Lebanon decided to proceed with its share of the scheme while at the same time declining to invite forces from other Arab countries to help defend Southern Lebanon from Israel attacks.

The June 1967 Arab-Israeli War, caused in large measure by tension arising from the water crisis, put a sudden and final end to the Arab League's diversion plan. In a period of six days the amount of territory controlled by the Jewish State tripled. The Golan Heights,

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48. Samir N.Saliba , *op.cit.*, p.108-109.
49. Kamal S. Saliba, Crossroads to Civil War in Lebanon 1958-1976, (New York: 1976), pp.23-25.
50. Ibid
51. Samir N.Saliba, *op.cit.*, pp.109-110 and see also Don Pretze, " River Schemes and their Effects on Economic Development in Jordan, Syria and Lebanon", *Middle East Journal*, Vol.18. No.3 (Autumn: 1964) pp 293-off: see also Ministry of Foreign affairs, "The Arab Plan to Divert the Headwaters of the River Jordan "(Jerusalem, 1965) in Yoneh Alexander and Nicholas N. Kittrie, eds., Crescent and Starr: *Arab Israeli Prespective on the Middle East Conflict* (New York: 1973), p.209.

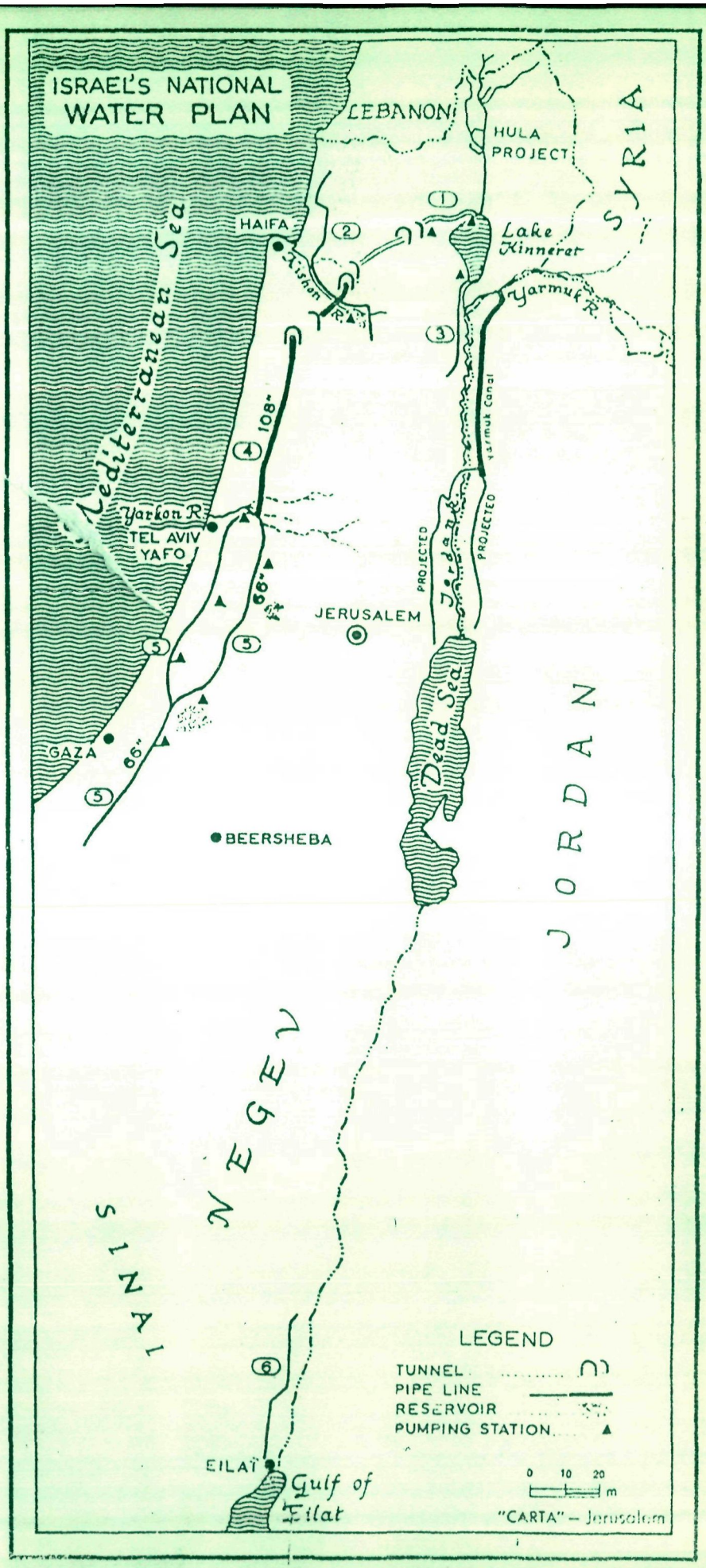

FIGURE - 10

Source : Samir N Saliba, The Jordan River Dispute , 1968

the balance of Mandatory Palestine and the Sinai Peninsula all the comė under Israeli occupation. With the seizure of Baniyas stream by Israel in 1967 the water crises itself lost much of its urgency.

2. ISRAELI ATTEMPTS TO ACQUIRE THE LITANI WATERS

The largest river in Lebanon, the Litani (100 miles), originates from the ruins of a Baalbek close to Lebanese border with Syria and flows southward through the broad Bekaa Valley. Near the frontier with Israel, the water drops to enter a deep Canyon, turn west and cuts through the Southern coastal mountain range and then joing into the Mediterranean Sea near historic Tyre. [52]

The Modern Lebanese State came into existence in 1920. Before 1920, the Lebanese State was geographically a much smaller entity comprising only the mountaineous region. Mountain Lebanon was traditionally the home of Maronite Christians. Besides the Maronites, Mount Lebanon was also the home of Druze, a religious sect of Islam. In the early sixteenth century the Ottomans captured Mount Lebanon and Syria from the Mamluks. With the defeat of the Ottoman Empire in First World War, Syria and Lebanon came under the control of France.[53]

Israel has shown interest in the Litani since the time of Theodor Herzl. His diaries reveal that in 1897 the German Chancellor Prince Hohenlohe had asked him whether the Zionists wanted the territory of their State to extend "as far north as Beirut or even beyond that.[54]

During the First World War, the Zionist Organisation began to draw up firm plans for the establishment of Jewish national home in Palestine. On 19th September 1918, the allies established the Occupied Enemy Territorial Administrations (OETA) in order to provide military Government to conquered Ottoman territories in the eastern Mediterranean coastal region.[55]

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52. Leslie Farmer; "The Beleagured Litani, (Will Israel Grab It?)", *Mid East:* A Middle East North African Review, Vol.X, No.1 (February 1970), p.16.
53. For an Indepth Study of the Maronite Community see, Matti Moosa, *The Maronites in History,* (New York: 1986) Phillip K.Hitti, *The Origins of the Duze People and Religion* (New York:1928).
54. Quoted in Leslie Farmer, *op.cit.*, p.18.
55. Stephen Hemsley Longrigg, *Syria and Lebanon Under French Mandate* (London: Oxford Univer sity Press, 1958), p.66.

In February 1919 the World Zionist Organisation (WZO) placed before the Supreme Council at the Paris peace talks, a proposal regarding the boundaries of Palestine. The proposed boundary sought to extend the northern frontiers of Palestine upto the foothills of Mt. Hermon. it started from the mediterranean coast just south of Sidon, running in an easterly direction across the Litani river and included the whole of the Jordan catchment area upto it northern most source in Rashayya before turning south towards Golan Heights (See Fig.-11).[56] The Zionist proposal was opposed by France which insisted upon the original Sykes-Picot line. The WZO then launched a vigorous campaign aimed at persuading the French to give up Litani but it did not succeed.[57] In 1919, Great Britan put forth the Deauville proposal, which recommended a boundary following the Litani (Qasimiyya) River from the coast, that continues eastward and encompasses the village of Baniyas. According to British statesmen this was the ancient Dan. The Deauville proposal was rejected in February 1920 by the French and Litani remained inside Lebanon.[58] In the same year, British Prime Minister met Secretary General of the French Foreign Ministry Berthelot, who said that "all Jews" were unanimously agreed that the sources of the Hermon and the headwaters of the Jordan played vital role in the existence of Plalestine. Berthelot replied, Lloyd George recalled in his memories of the Peace Conference, that the snows of Hermon "dominated the town of Damascus" and could not be excluded from Syria nor could the waters of the Litani.[59] In June 1920, an agreement was proposed by France, which recommended a line that would leave the coast at Ra'san Naqurah, a few miles north of the the Sykes Picot/OETA line, proceed eastward and then turned sharply north, so as to include within Palestine a vertical strip of territory containing the northmost Jewish settlement (Metulla) and the Hula Valley.[60]

Weizmann, tried to convince General Gourud, the French High Commission in Beirut, of the importance of the waters of the Litani to Palestine but could not arose any interest.[61]

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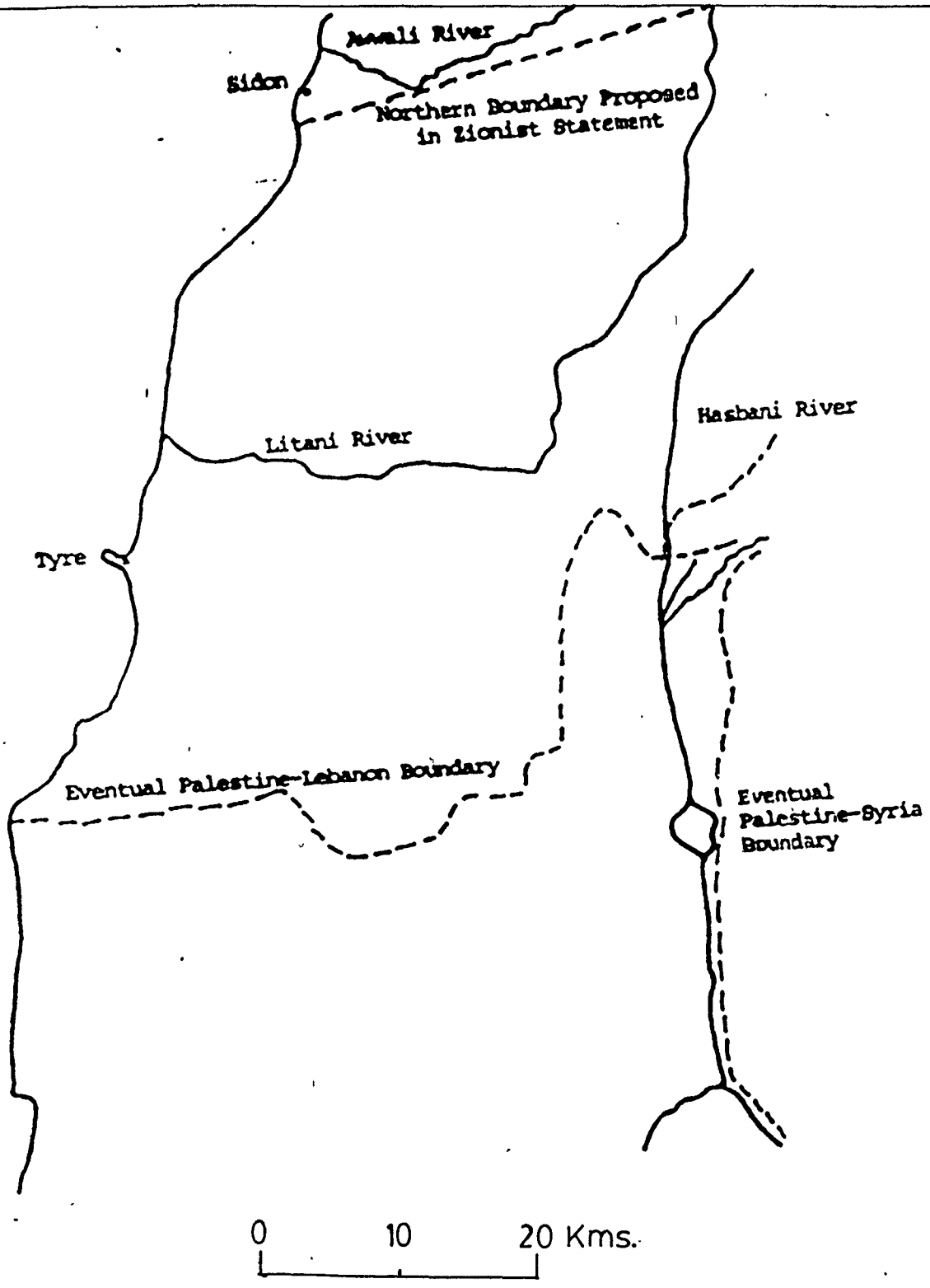
56. For the Text The Zionist Proposal to the Paris Peace Conference, See Bannet Litvinoff, ed; *The Essential Chaim Weizmann: The Man, the Statesman, the Scientist* (London: 1982), pp.77-78.
57. Leslie Farmer, *op.cit.*, p.18.
58. Frederic C.Hoff., *Galilee Divided: The Israel Lebanon Frontier* (Colorado: Boulder, Westview, 1985), p.9.
59. Leslie Farmer, *op.cit.*, p.19.
60. H.F.Frischwasser-Ran'nan, *The Frontiers of a Nation: A Re-examination of the Forces Which Created the Palestine Mandate and Determined its Territorial Shape* (London: the Watch Worth Press, 1955), p.136.
61. Chaim Weizmann, *Trial and Error, The Autobiography of Chaim Weizmann* (London:1950) p.360.



THE "OFFICIAL" ZIONIST
BOUNDRY PROPOSAL

Figure : 11

Source : Frederic C. Hoff, Galilee Divided : The Israel Lebanon Frontier, 1985

Finally the agreement between Britain and France was reached in December 1920. From the Zionist perspective the implications of Palestine's northern frontiers were quite serious. In the north the country was deprived of almost all important water resources which the Zionist leaders considered vital for the power and irrigation plans they had in mind. More important, by failing to approximate natural geographic boundaries, the borders left the country all but indefensible militarily.[62]

The boundary agreement of 1920 cut sharply into the most optimistic Zionist estimates of the amount of water available to support extensive Jewish agricultural colonization in Palestine. Zionist planners wanted to divert part of the flow of Litani River eastwared into the Hasbani River, where the Litani would flow into the Jordan Valley and eventually be piped overland to the Negev desert.[63] In 1921, in the book of Jewish Foundation Fund, Karen Hayesod recorded, pessimistically, "it is, of course much to be regretted that we must abandon for the present all plans concerning the Litani".[64]

In 1923, the British and French agreed on the final boundary lines, to the great disappointment of the Zionist leaders. They had hoped to retain the Litani, the Upper Jordan, Mount Hermon and the Hauran in Syria. They attempted, neverthless, to achieve changes in the boundaries by settling immigrants in Syria and Lebanon; a move violently opposed by the French. The Anglo-French boundary agreement of 1923 was approved by the League of Nations in 1934. And after that the Zionist leaders gradually lost hope of ever achieving a change in the frontier line.[65]

In 1943 the Zionist received a small measure of encouragement when some Maronite leaders appeared to be willing to share the water of the Litani for the agricultural development of the Jewish colony. The Lebanese engineering firm of Alfred Naccache and Jewish engineers of the Palestine Water Cooperative conducted a joint study which concluded that Lebanon could usefully exploit only one seventh of Litani's flow.

The study approved, therefore, that most of the water be diverted from a point

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62. Howard M.Sachar, *The Emergence of the Middle East: 1914-1924* (New York: 1969) p.284.
63. A. Schmidt, "Prospects for a Solution of the Jordan River Dispute", *Middle Eastern Affairs*, Vol.6, No.1, (Jaunary 1955), p.4.
64. Leslie Farmer, *op.cit.*, pp.19-20.
65. Raa'nan, *op.cit.*, p.139.

where the river takes a westward bend through a tunnel into Palestine. In exchange for water Lebanon would receive all or part of the power produced by the water drop from the mountains to the Jordan Valley. The study heartened the Zionists, whose dreams of Negev deveopment could not be fully realized without the Litani waters.[66]

In 1944, the Jewish Agency utilized the services of Walter Clay Lowdermilk, who was the Assistant Chief of the United States Soil Conservation Service, and later the Head of the Department of Agricultural Engineering at Technion, the Israeli Institute of Technology. After three months of field studies in Palestine and Transjordan he proposed a Jordan Valley Authority (JVA) on the lines of the Tennesse Valley Authority (JVA). The details of JVA were developed by James Hays, Chief engineer of TVA. Lowdermilk noted the possibility of tapping the Litani and diverting some of the water to the Palestine coast and Negev.[67]

These schemes however, lost relevance because of establishment of the State of Israel in May 1948. The establishment of Israel immediately sparked off the first Arab-Israeli War Lebanon along with Egypt, Syria, Jordan and Iraq participated in this war. The Israeli Army occupied Southern Lebanon upto the point where the Litani takes a westward bend. When negotiation for a General Armistice Agreement (GAA) started, Israel tried to couple it withdrawal from Lebanese territory with guaranteed access to the waters of the Litani. [68] The Lebanese Government, however, refused to give any concessions and several weeks of stalemate followed. It was only after Israel was finally made to withdraw completely in March 1949 that a GAA was signed between the two. Immediately, thereafter, the Lebanese Government begun preparing a proposal for the Litani Project which had triple objective (i) sending the potable Litani water to Beirut (ii) utilizing the water for irrigating the Biqa and South Lebanon (iii) utilizing the water flow for the generation of hydroelectric power.[69]

Irrigation the Negev was a venerable Zionist dream and although its failure to acquire the waters of the Litani had wrecked plans for large-scale desert irrigation, Israel decided that

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66. Dana A. Schmidt, *op.cit.*, p.4.
67. Walter Clay Lowdermilk, *op.cit.*, p.177 and see also James Hays, *TVA on the Jordan: Proposals for Irrigation and Hydro-Electric Development in Palestine* (Washington:1949).
68. George Kirk, *Survey of International Affairs : The Middle East, 1945-1950* (London: 1954), pp.288-289.
69. Uris Davis, Antonia, E.I. and Richardson, John, et.al, " Israel's Water Policies", *Journal of Palestine Studies*, Vol.X, No. 2 (Winter 1980), pp.3-31.

even a token Jewish agrarian presence in the Negev would be an important symbol of the vitality of the Jewish State. In July 1953 therefore, the Israeli Cabinet approved a plan to draw water from the Jordan river at the banat Yakub bridge for diversion to the Negev. Work on the canal began in September 1953 but as the diversion point was located in a demilitarized zone created by the 1949 Israeli-Syrian Armistice Agreement, Syria immediately protested. The Syrian position was upheld by both the UN and the US . American pressure ultimately forced Israel to suspend work on the project the following month.[70] In October 1953 President Eisenhower despatched Eric Johnston to the region to undertake the joint development of the Jordan Valley. Johnston carried with him a Charles T. Main which called for a dam and reservoirto be built in Lebanon on the Hasbani river. The ommission of the Litani angered Israelis, In response to the Main plan they came up with the cotton plan designed by an American engineer John S. Cotton. The Cotton Plan tied the Litani to a regional development scheme and estimated that the surplus water not needed for irrigation in Lebanon (amounted to nearly 50 per cent or 400 MCM of ties Litani's water) be diverted to Israel from a point near Marjuyun. This diversion was to take place through a tunnel at a point seven miles from the Israeli border where the Litani makes a sharp westward turn towards the Mediterranean Sea. The Cotton Plan gave sufficient water for all of irrigable land of Lebanon. Lebanon would receive per annum 450. 7 MCM water to irrigate, 35,425ha (350,000 dunams). However, a report prepared by a group of US Bureau of reclamation experts working for the Foreign Operation Administration was of the opinion that Lebanon did use about 80 percent of the Litani waters.[71]

Israel's attempts to bring the Litani into a regional water development scheme could not find favour with the Americans. As Brecher states, "while a strong case could be made on technical and geo-economic grounds, Israel's legal claim was non-existent; the Litani was a wholly national river of an enemy State.[72] James Hudson points out that, since Israel has no real share of the Litani basin, it has no claim under international law to any Litani waters.

Israel stood better chance of eventually obtaining some Litani water if an acceptable

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70. Leslie Schmida, Keys to Control: *Israels Parsuit of Arab Waters* (Washington D.C:) p.9-10.
71. Subhi Khhaleh, *The Water Problem in Israel and Its Reperrcussion on the Arab-Israeli Conflict*, (Washingto D.C: 1981), pp.23-24.
72. Giles Trendle, "Lebanon: Whose Water is It?" *The Middle East*, No.207,(January, 1992), p.18.

arrangement was first made and executed with the Arab States for Jordan river. In any case the water sharing negotiations initiated by the US in the 1950's itself failed amidst proposals and counter proposals and in October the Arb Leaque decided against signing an agreement might deal the case of Litani later on.[73]

Israel remained determined, with or without Arab co-operation, to divert a part of the Jordan river water for irrigation. Consequently in 1956, a national Water carrier Project for irrigating the Negev was approved and work begun in 1958.[74] The construction of Litani Project started in 1957. The major features of this Project were : (i) Hydroelectric production and simultaneous irrigation of parts of the southern Biqa, irrigation of some agricultural lands in the upper Galilean regionand some part of the Sidon-Beirut coastal region. On 30 January, 1961, a plan was adopted by the Political Committee of the Arab League which was designed to defeat the Israeli National Water Carrier Project. Though Lebanon was a party to the Arab League plan, Beirut's political leaders felt uncomfortable with the plan as it would drawn Lebanon into direct confrontation with the Jewish State.[75] (See Fig. 12)

In the 1960's a dam was built a lake Qaraoun with a 200 MCM capacity. A mountain tunnel was built from the lake to carry the Litani waters, four miles south to a hydroelectric power station at Markabi. Two other hydroelectric power stations Awali and Joun were built from there westward before joining with Awali which flows into the Mediterranean Sea just north of Sidon.[76] Lebanon had proposed one more dam to be built at Maifadoun, where the water could be stored and distributed for irrigation purposes. But this plan was never carried out.[77]

In January 1964 the Arab League adopted a plan designed to defeat the Israeli intention of diverting the waters of the Jordan. The Arab Plan amounted to an attempt to reroute the headwaters of the Jordan-Hasbani and Baniyas away from Israel. The Hasbani was to be diverted partially into the Lower Litani with a smaller quantity going eastwards

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73. Michael Brecher, *Decisions in Israel's Foreign Policy* (New Haven, C.T:Yale University Press, 1975), p.18.
74. Don Peretz, "Development of the Jordan Valley Water," *Middle Eastern Journal, op.cit.*, p.406 and see also Kahhaleh, *op.cit.*, p.30.
75. James Hudson, *op.cit.*, p.13.
76. Giles Trendle, *op.cit*, p.18.
77. Ibid., pp.18-19.

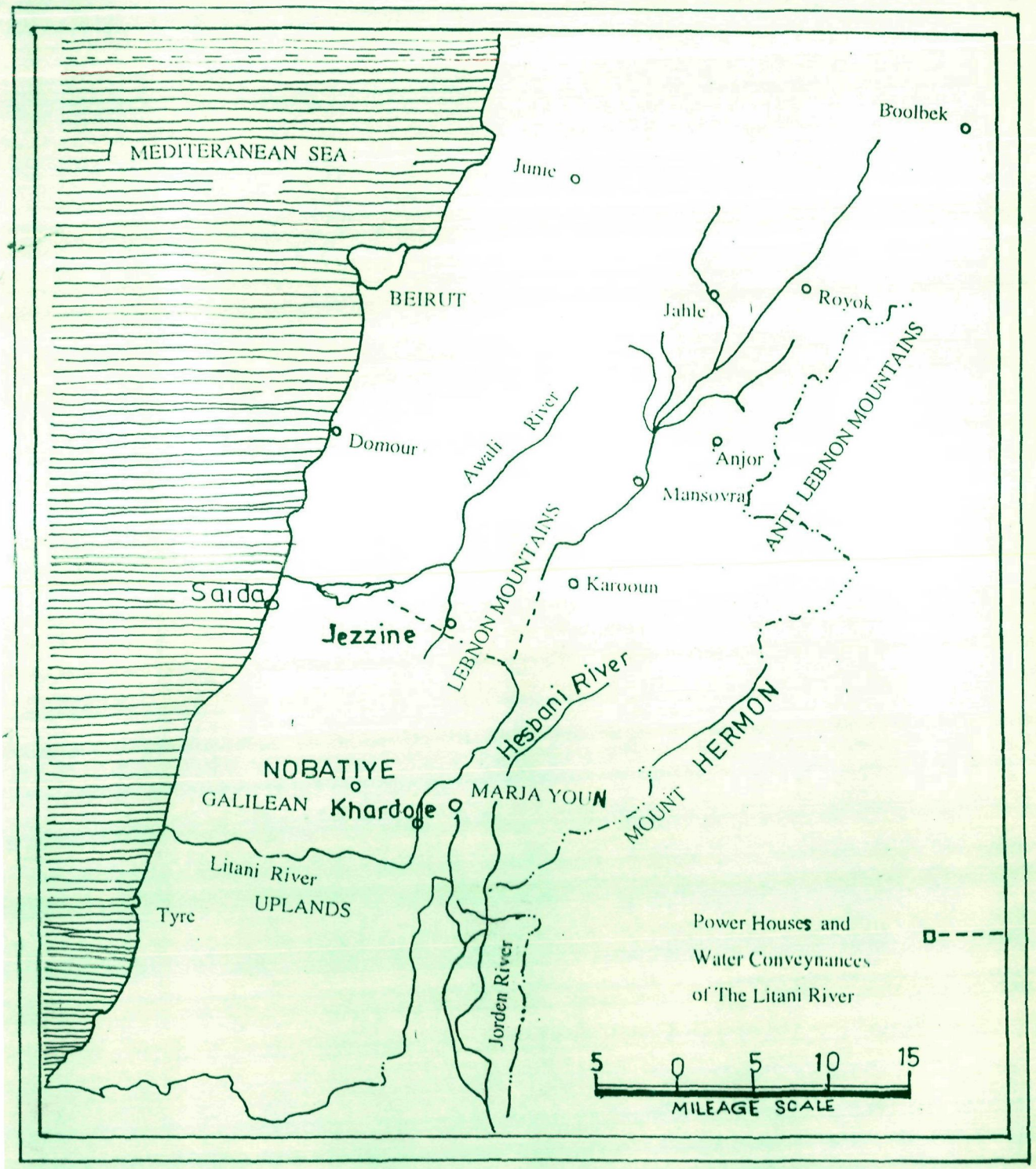

Figure : 12

Source : James Hudson, The Litani River of Lebanon, Middle East Journal vol.25, 1971

into Syria's Baniyas river. The Baniyas in turn was to be connected to the Yarmuk river, a tributary of the Jordan.[78] Israel, quite expectedly was severely critical of the Arab league decision. Nothing that the Arab League had earmarked part of the flow of the Hasbani for irrigating Southern Lebanon Israel argued that :

> "All irrigation plans for Southern Lebanon have turned in the first instance, on utilizing the river Litani with its annual flow of 850 MCM of which to this day, most runs to waste into the Mediterranean. Now a good deal of this flow of the Upper Hasbani is to be wasted as well. Lebanon has sufficient water for irrigation, arable land, not water has always been the factor limiting the development of Lebanese agriculture".[79]

Work began on the Arab League's plan and Lebanon decided to proceed with its share of the scheme while at the same time declining to invite forces from other Arab countries to help defend Southern Lebanon from Israeli attacks. Feelings once again ran high in the Arab world as tension mounted between the frontline Arab States and Israel. The June 1967 Arab -Israeli War, put a sudden and final end to the Arab League's diversion plan.

The First Phase of the Litani project was completed before the beginning of June 1967 Arab-Israeli War. With its completion the assumption on which the Cotton Plan and previous Zionist plans for using the Litani had been based were dramatically changed. Although Israel wanted to get 400 MCM of water from the Litani river, after the construction of the Qirwan dam only 100 MCM water was left for the Lower Litani.

The history of Litani thus revolves around three issues : (i) Continuing Zionist interest towards South Lebanon's most significant water resource the Litani River; (ii) independent Lebanon has performed a role in Arab efforts to divert the headwaters of the Jordan River away from Israel's Hula Valley; (iii) the climax of water tension before and during the June 1967 Arab-Israeli War. After the 1967 War, Moshe Dayan, defence Minister proclaimed that : "Now Israeli borders are all geographically natural except the northern border with

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78. Kahhaleh, *op.cit.*, p.31.
79. Ministry of Foreign Affairs, *"The Arab Plan to Divert the Headwaters of the River Jordan"*, Alexander and beginning Nicholas N.Kittrie, eds., *Crescent East Conflict*, (New York:1973), p.289.

Lebanon" This theme was repeated again and again throughout the 1970's. On December 3, 1976, the Israeli daily Hatsoufeh pointed out, "The natural and historic border between the land of Israel and Lebanon is the Litani River, for the Jabeel mountains extend naturally with the three mountains to the Litani River." [80]

In April 1972, the Lebanese Minister of Hydroelectric Resources asked a U.S. delegation to finance a Litani scheme to irrigate 23,000ha. (227,240 dunams) of southern Beqaa Valley and provide a new water network for Beirut. In October, 1974, the President of the Council of the Administration of National office of the Litani concluded an agreement in principle with the World Bank to provide 60 per cent of the $ 130 million cost of the ten year project.[81]

3. HISTORY OF THE EUPHRATES - TIGRIS BASIN

The Euphrates and Tigris rivers have long been the focus of development and planning in the lands through which they flow. These are old multinational rivers and the Euphrates - Tigris basin is located in three countries- Turkey, Syria and Iraq. These have flourished since 4000 B.C. Several ancient civilizations of Mesopotamia developed and flourished in the basin formed by these two rivers.[82] Some of these are also mentioned in the Bible. It is believed that the land between these two rivers is one of the oldest, continuously inhabited regions of the world. The earliest recorded settlement goes back to 6000 B.C. This region is therefore, rightly known as Cradle of Civilization.[83] Mount Ararat in Turkey is the source of origin of these rivers. Both these gaint rivers originate in South-East Turkey, then flow through Syria and northern Iraq to the rich delta land, where they join to empty into the Persian Gulf.[84] These rivers were extensively used for irrigation during the ancient period,as a result of which the effect of over irrigation was apparent, during the mediveal period.

As Egypt is considered to be the Gift of Nile so is Mesopotamia considered to be

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80. Quoted in John Cooley, Lebanon Fears Loss of Waters to Israel, *Christian Science Monitor* (23 March 1978), p.3.
81. Quoted in Hasan Sharif, South Lebanon. *Its History and Geopolitics, in South Lebanon,* pp.19-20 ed., by Elain hagopieen and Samir Farsoum, (Detroit: Association of Arab American Univer sity 1971), p.13.
82. Murakami Masahiro, *op.cit.*, pp.39-40.
83. Bahiya Lovejoy, *The Land of People of Iraq* (New York :J.P Clippincott Company, Phildelaphia, 1969), pp.1-8.
84. Naff and Maston, *op.cit.*, p.92.

the Gift of Tigris and Euphrates. Mesopotamia is a Greek words meaning "A Land Between two Rivers". Since the ancient times this part of the world has been referred to as the 'Fertile Crescent'.[85] Since early times, the waters of these rivers have been used in the development of agriculture. A canal system existed which although simple, was highly effective for agricultural as well as domestic use. A number of canals were constructed on both sides of the river, southward from Tikrit. Five canals supplied water from the Euphrates to the Tigris in the region of Baghdad and Babylon.

In brief, the extensive irrigation system is largely responsible for the prosperity of the famous Mesopotamian Civilization. The ancient Babylonian Civilization gained its wealth from the fertile lands and invested this in constructing vast irrigation works, which further enhanced productivity giving it the title of the 'Granary of World'.[86]

The major invasions of Mangols in the thirteenth and fourteenth centuries as well as Turkish vanquishments in 1638, destroyed the irrigation works and with its the prosperity of the country. During the Ottman empire attempts were made by the Sultan's representative in Baghdad to revive the ancient irrigation network. However, these efforts could not succeed, because of the lack of resources, as well as a strong administration. Sir William Willocks, advisor to the Ottoman Ministry of Public works, submitted a scheme for the irrigation of 3.5 million acres at a total capital cost of 26 million pounds in 1909.[87]

The riparian states-Turkey, Syria and Iraq have all formulated plans and implemented projects begining in the early decades of this century to achieve flood control on the Euphrates and to use its water for hydro-electric power generation and large scale irrigation (See Fig.13).[88]

In 1911, the first part of the scheme, the Hindiyia barrage, was taken up by the British firm of Sir John Jaikson Ltd. In 1913 a barrage was formally constructed at Hindiyia on the Euphrates. The major aims of this barrage were : the diversion of water from the Euphrates into a canal as well as increment in the general water level of the Euphrates and the provision of irrigation in the Karbla region. It was a diversion barrage which affected five

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85. Bahiya Lovejoy, *op.cit.*
86. Ibid.
87. *British Government, Mesopotamia* (London: Publishing of Statationary,1920).
88. Naff and Maston, *op.cit.*, p.92.

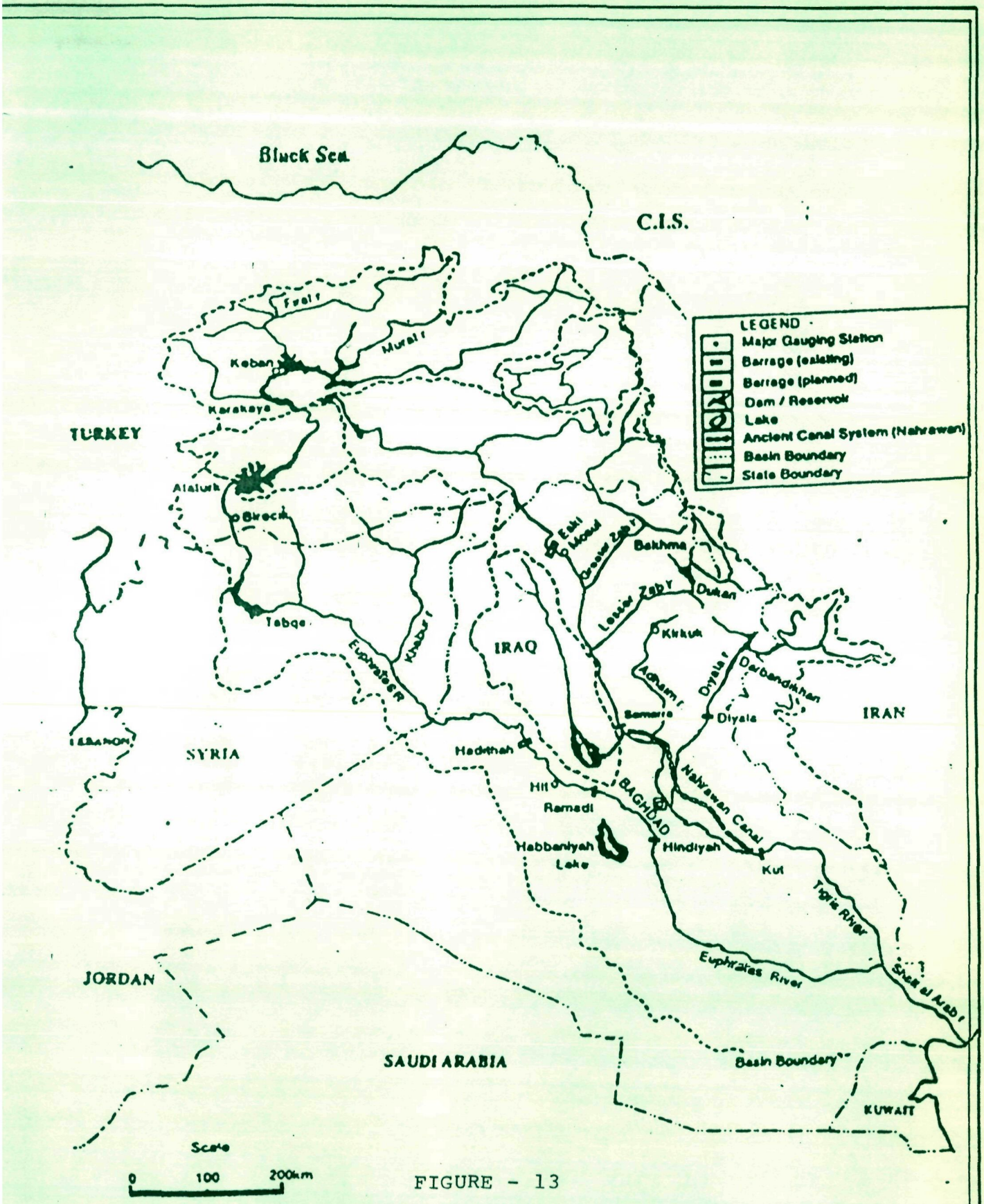

FIGURE - 13

Euphrates-Tigris Basin with Major Water Projects
Source: Middle East Research Institute

canals and provided water to the upsteam riparian states.[89]

In the 1950's a second barrage was built at ar-Ramadi. The main aim of this barrage was the diversion of Euphrates flood waters into Lake Habbaniyah and the Abu Dibbis depressions to avert the danger of flood in the Euphrates. These natural depressions are located on the right side of the river. These depression have proved to be very functional . They are used for storage of water purposes. Simultaneously canals were dug to return water from the reservoir back to the river during the low flood seasons. The second reservoir is connected with the Habbaniyah reservoir by a channel and is for flood control only. The total capacity of Habbaniyah is about 3,000 MCM, of which 2,500 MCM is left for storage. Evaporation is the only source to release water from Abu Dibbis as it has no outlet. It holds as much as 24,000 MCM, when it is full.[90]

This barrage was constructed in 1955-56, since then, whenever the water level is very high it has been possible to divert 88,300 MCMY of water in the direction of Lake Habbaniyah along a canal on the right side of Euphrates, 3 kilometres from Ramadi town at the Warrar Stream. The length of this canal is 8.5 kilometres and it is 210 metres wide. In addition, another canal leads to the Abu-Dibbis reservoir, a depression west of Karbla town. This depression is used only to receive surplus water from Habbaniyah during the flood season.[91]

In this way, the importance of the Tigris in relation to the Euphrates cannot be overlooked. In Baghdad, both the rivers flow in distinct and well defined valleys. At Baghdad they come closest, flowing at a distance of 40 kilometres, only from each other. They get separated again below Baghdad, though the Valley Walls disappear. Because of greater volume, the largest flood control scheme of Iraq is located on the Tigris.

Tharthar barrage, similar to the Ramadi, was completed in 1955-56 at Samara on the Tigris. It was capable of diverting 28,382 MCMy of water in the direction of the depression of Wadi. Tharthar is also a natural depression and it has storage capacity of 72,840 MCM. For the first time in its history, Iraq was protected from the catastrophe of regular floods by

89. S.Malik Al Ali, Development of International River *op.cit.*, p.125-139. *Water for Human Needs Development and Meteorology*, Vol.3 (New Delhi: 12-16 December 1975).
90. Naff and Maston, *op.cit.*, p.89 and see also S.Malik Al Ali, *op.cit.*, p.125-139.
91. Ibid.

the completion of these two projects. It had been hoped that stored water from these two projects might be used for irrigation during the summer months. But it was discovered that very large evaporation losses, coupled together with the dissolution of salts from the soils of the depression, seriously diminished water quality and rendered it unsuitable for irrigation purposes. In conjuction with the barrage on the main stream themselves, two major dams were constructed on the tributaries of Tigris. The Dukhan dam was completed in 1959 on the Lesser Zab river. The total capacity of the reservoir is 6,300 MCMY while further south, the Darbandi Khan dam was opened in 1961 on the Diyala river with the storage capacity of 3,250 MCM.

In 1957 Damascus signed an agreement with the Soviet Union to carry out survey and research work on the river. The Soviet Union submitted its reported at the end of 1960, proposing to build a 75m. dam on the Euphrates at Tabqa with an electricity generating capacity of 800,000 kw and the potential to irrigate upto 850,000ha (8,398,000 dunams) of farm land.[92]

During the 1960's Turkey, Syria and Iraq started discussing plans for the development of the Euphrates and the diversion of its waters.[93] The Syrian government accorded high priority to the development projects on the Euphrates river setup various organization to work in this direction. During the same period, a Five year plan was drawn up which gave special emphasis on the development of water resources. This plan was put forth by Syria for the expansion of irrigated areas on Khabur, Sajur and Balikh rivers, in the Hassaka region. Syria has been using the Asi river from 1961 for irrigation in Ghab Valley. The Rustam (250MCM) and Hilfaya Mehardeh (65MCM) dams provide water to generate electricity for the cities of Homs and Hama.[94]

In 1961 First General Organization of the Euphrates dam was setup in Syria. This was followed by the establishment of Higher Authority for the Euphrates projects directly under the Prime Minister. In 1968 the General Administration was established for the development of Euphrates basin.[95]

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92. Zohural Bari, "Syrian-Iraqi Dispute Over the Euphrates Water", *International Studies*, Vol.16, No-2(1977), p.232.
93. Naff and Maston, *op.cit.*, p.90-93.
94. Natasha Beschorner, *op cit* , p.33.
95. Zohural Bari, *op cit* , p.234.

The Ziezoun and Kastoun dams having a total storage capacity of 98MCMY, regulate the erratic flow of the Asi. This reduces the flow into Turkey to 25MCMY. The Asi river originats in Lebanon and it flows though Syria into the Hatay province of Turkey.

Under the 1972 Syrian-Labanese agreement, Lebanon was alloted 80MCM of Asia waters.[96] The Asi river is used to irrigate approximately 230,000 ha (2,272,400 dunams) and Yarmuk is used to irrigate around 27,000ha (266,760 dunams) in Syria and Lebanon have been discussing the feasibility of joint development projects on the Asi. During the early 1970's differences arose over sharing the Euphrates water among the riparian states. As both Syria and Iraq were close allies of the Soviet Union, Moscow Intervened to work out a solution for the equitable distribution of Euphrates waters. It assisted both Syria and Iraq with funds as well as technical expertise to carry out development projects on the river. Ten years after it had first harnessed the waters of the Euphrates, the Damascus government began contemplating building a second dam on the river. This dam, known as the Euphrates dam is the second largest dam in this region to be built with Soviet assistance. The dam was completed in 1973.[97] The basic structure of dam is as follows : It is 4.5 kilometers long and 60 meters high. The base is 512 meters wide. Also the Tabqa dam built by Syria in 1973 for multipurpose use became operational in 1974. The total capacity of the reservoir is about 1,250 MCM and the live storage is about 750MCM. Estimates available prior to completion of the dam suggested that Syria extracted 3,000 MCMY from the Euphrates for local irrigation and domestic use whereas the irrigated land in the basin varied from 200,000 ha (1,976,000 dunams) to 500,000ha (4,940,000 dunams).[98] Syrian officials estimated that the dam would increase the irrigated area to 600,00-650,000ha (5,928,000 dunams - 6,422,000 dunams). Results to date, however have been disappointing. In this light, the Syrian government was also concerned with controlling the amount of water used for domestic consumption. Since the Euphrates dam of Syria was nearing completion, Turkey started construction of a series of three multipurpose dams, downstream from Keban. In 1974, the Keban was completed on the Euphrates river. The main purpose of this dam was power production, with reservoir

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96. Natasha Beschorner, *op.cit.*
97. Naff and Maston, *op.cit.*, pp.93-99.
98. S.Malik Al Ali, Water for Human Needs, Development and Meteorology Proceeding of the Second World Congress, Vol. III, *op.cit.*

capacity of 1,650 MCM of which 360 MCM is left for storage.[99]

In the late 1970's Turkey followed Syria's lead in trying to exploit the Euphrates for irrigation and hydroelectricity. Turkey is also building three additional dams below the Keban. The dam at Karbaba, renamed the Ataturk dam, is intended to supply irrigation water for 300,000ha (2,964,000 dunams) in Urfa, Hassan and Lower Mardin plains and to an additional 400,000ha (3,952,000 dunams) in the Severek-Hilian, Upper Martin and Nusaybin Cizre areas. The total storage capacity of Ataturk dam is 48,700 MCM, an installed electricity generating capacity of 2,400 million KWh and target of 27,000 million KWh per year. The other, the Karakaya and the Golkay are designed to generate hydropower for the region.[100]

The water project of Turkey are motivated by a quest for cheaper, domestically produced energy. Turkey imports 50 per cent of its annual energy requirements and 25 per cent of electricity production depends on imported fuel. The most important Turkish project, South East Anatolia Project (GAP) plans to harness the waters of Tigris and the Euphrates rivers for HEP generation and irrigation purposes. The hydropolitical implication of GAP appear to pose a threat to regional stability. The building of the Ataturk dam was widely potrayed as a belligerent act in the Arab media but the GAP puts the economic and technical aspect in perspectives. It proposes to develop agriculture and agro-industrial production for export and to raise the standard of living of the Kurdish people in the region. The first stage of GAP consists of 13 projects of which seven on the Euphrates and six on the Tigris.[101]

The Haditha dam was completed in 1985 on the Euphrates with a total storage capacity 6400 MCM to irrigate 1 million ha. The water of Tigris are used to irrigate 2.2 m. ha. mainly using the Mosul dam (10,700 MCM). The Tishreen dam was completed in 1991, with a total storage capacity of 1900 MCMY an installed hydroelectric power generation capacity of 63 MW in a year.[102]

CONCLUSION

Conflict over water resources in the arid parts of West Asia came into existance in the

99. Naff and Maston, *op.cit.*, pp.90-91.
100. Natasha Beschorner, op.cit., pp.30-31.
101. Ibid.
102. Ibid., pp.35-35

early decades of this century. The Jordan river was one of the source of the first rivers in this region which witnessed sharp disagreements over the sharing if its waters. The influx of Jews into Palestine and the move towards creation of Jewish State was the principal reason for this bitter controversy. As large part of the proposed Jewish State was covered by the Negev desert, the development of the Negev was a critical factor as far as assembling furthar Jewish immigrants were concerned. The Jewish leadership was therefore keen to acquire as much water resources as possible. Several plans for the development of the Jordan river were put forward by the Jewish Agency from 1913 to 1948 which aimed at obtaining the water of the Jewish. Some of the important plans of this persons were Franghia plan (1913),Mavromaties (1922), Ionides Survey (1939), Lowdermilk (1944) Hays-Savage plan (1948). However, none of this plans could be implemented due to tremendous opposition from the Arabs.

The creation of Isarel in 1948 immediately led to the First Arab-Israeli War. In the wars aftermath, there was absolutely no possibility of due of the Jordan basin on a cooperative basis. Hence the Isarels started is implementing unilateral measures aimed at controlling as much water of the Jordan as possible. Predicably Israel's policy has generated a lot of tension as the riparians states have opposed Israel's attempts to control the water of the Jordan river. The water of the Litani a wholly national river in Lebanon too have been a sources of attraction for the Jewish State.

In February 1919 the World Zionist Organisation (WZO) placed before the Supreme Council at the Paris Peace talks, a proposal concerning the boundaries of Palestine. It started from the Mediterranean coast just south of Sidon, running in easterly direction across the Litani river and included whole of the catchment area upto it northern most source in Rashayya before turning south towards Golan Heights. The Zionist proposal was opposed by France and the boundary between Israel and Lebanon was demarcated in a way that the Litani remained with in Lebanon. The joint study approved in 1943 therefore, that most of the water be diverted from a point where the river takes a westward bent through a tunnel into Palestine. In exchange for water Lebanon would receive all or part of

the power produced by the water drop from the mountains to the Jordan Valley. The study heartened the Zionist, whose dream of Negev development could not be fully realized without the Litani waters. In 1944,W.C. Lowdermilk proposed a Jordan Valley Authority (JVA) on the lines of the Tennessee Valley Authority (TVA). The details of JVA were developed by James Hays, Chief engineer of TVA. Lowdermilk noted the possibility of tapping the Litani and diverting some of the water to the Palestine coast and Negev. Soon, these scheme however, lost relevance because of establishment of the state of Israel in May 1948. The establishment of Israel immediately sparked off the First Arab Israeli War. The Israeli army occupied southern Lebanon up to the point where the Litani takes a West ward bent, when negotiation for a General Armistice started, Israel tried to link its withdrawal form Lebanese territory with guaranteed access to the waters of the Litani.

It was only in the late 1970's that Israel could manage to obtain a foothold on the Litani when it occupied a portion of Southern Lebanon. With the second Israeli invasion of Lebanon in the early 1980's, this occupation was further, expanded and consolidated. Israel carried out extensive hydrological and technical studies, aimed at diverting part of the Litani's water into northern Israel.

The Euphrates and Tigris are the major rivers in the Euphrates-Tigris basin. The Euphrates flows through Turkey, Syria and Iraq.The Euphrates and Tigris rivers have been a source of livelihood since 4000B.C. In this basin various old civilization have developed and thrived. The region is called as the "cradle of civilization". The Mesopotamian and Babylonian civilizations have flourished in the region. From the beginning of this century, the sharing states of Euphrates-Tigris drainage basin have all formulated plans and implemented projects to regulate the flood waters of Euphrates as well as utilize its water for multipurpose projects. In 1913 a Hindiyia barrage was constructed on the Euphrates to divert water of Euphrates into a canal, and increment in the general water level of the Euphrates. In the 1950's a second barrage was made at ar-Ramadi. Its main purpose was the diversion of Euphrates flood water into Lake Habbaniyah and the Abu Dibbis natural reservoirs to avert the danger of flood. The Euphrates dam was completed in 1973 with the Soviet help and cooperation. Turkey started work on a series of multipurpose dams. The Keban dam was constructed in 1974 on the Euphrates river with a total capacity of 1,650 MCM, of which 360 MCM is left for storage. The dam at Karababa, renamed the Ataturk dam, is intended

to supply irrigation water for 3000,000 ha (2,964,000 dunams) in the Severck-Hilian Upper Martin and Nusaybin Cizre areas. The total capacity of Ataturk dam is 48,700 MCM.

Several dams and barrages have also been constructed on the Tigris river. In Baghdad, both rivers flow in distinct and well defined valleys at a distance of 40km from each other. Tharther barrage, similar to the Ramadi, was built in 1955-56 at Sammara on the Tigris. It has capacity of diverting 28,382 MCMY of water in the direction of the depression of wadi and its storage capacity is 72, 840 MCMY. The Dukhan dam was constructed in 1959 on the Lesser Zab river and has total capacity of 6,300 MCMY. Further south, the Darbandi Khan dam was built with in 1961 on the Diyala River with total storage capacity 3,250 MCMY.

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CHAPTER: III

CONFLICT OVER RIVER WATERS: POLITICAL DIMENSIONS

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CONFLICT OVER RIVER WATERS: POLITICAL DIMENSIONS

Control over water resources of the Jordan River has been the most contentious issue among the frontline, Arab States on the one hand and Israel on the other. Facing acute water scarcity, the state of Israel ever since its establishment, has sought to acquire a major portion of the waters of the Jordan. Having faced perpetual hostility from its Arab neighbours, Israel considers the control over water supply as a strategic instrument and defensive technique that greatly affects regional balance of power.

Predictably, the Israeli policy has generated a lot of tension as riparain states have opposed Israel's attempts to control the waters of the River Jordan. The absence of precise international rules and regulations governing the sharing of waters of international river has further compounded the problem. The issue has become further complicated as its has become inextricably linked to the Palestinian problem.

1. HYDROPOLITICS OF THE JORDAN RIVER

Confronting Israeli threats to Arab water is not confined to a single Arab State. After the end of the First World War, the Zionist submitted their demands regarding Palestinian borders, to the Peace Conference and suggested that these borders start from a point on the Mediterranean Sea north of the mouth of the Litani, extending eastward to include all the sources feeding the Jordan River.[1] Weizmann, the Zionist leader, had sent a letter to Lord Curzon, then British Foreign secretary on October 30, 1920 in which he made it clear that there was a Zionist demand for the annexation of Lebanese and Jordanian lands.[2] Israel has incorporated defense consideration into the foundation

1. *Israel Government Year Book* (5712/1951), p.84, Ibid., (5720/1960), pp.246-247.

of the country by the establishment of agricultural settlement for security purposes. Since the early days of Zionism the Jewish settlements in Palestine were not viewed solely as economic enterprises or a way of life for their members, but were considered also as outposts spearheading or consolidating the Zionist conquest of the country.[3] The Jewish-Arab War and the humiliation that the Arab armies suffered at the hands of the Israelis has played an important role in moulding the thinking of the Arab World. The war drove about one million Arabs out of their homes. They left from fear of Zionist reprisals and the terror of destruction of their homes and families.

The impact of Arab-Israeli politics on the Jordan River conflict reveals only in part of some of the reasons for Arab rejection of any cooperation with Israel in developing the Jordan waters. The waters of the Jordan are vital to Jordan, the West Bank, Israel and the areas in Syria and Lebanon where some of the rivers of the basin rise.[4] Dividing these waters, estimated at about 1,500 MCMY and fluctuating from one year to the next, has been a nettlesome issue from the onset of Zionist colonization of Palestine.

A major feature of Israeli water project was irrigation of the Negev and its articulated policy in the context of water. Yet Israel feels that water resources for it requirements are insufficient. The Jordan Negev water line constitutes the back bone of Israeli defense plans and thereby represents the hydropolitical nature of Israeli water project.[5] As the Israeli bureaucrats suggested, "the main controlling factors in the planning of the Israeli National Water Project are the dispersal of settlements throughout the length and breadth of the state for political and security reasons."[6] Israel persisted in her plans to irrigate the Negev by diverting the Jordan River out of the watershed area to the desert. This was the major feature of the National Water Carrier Project. The first stage of this project was started almost immediately after the Armistice agreement of 1949 and it gave Israel a partial access to the headwaters of the Jordan.[7]

In September 1953, Syria brought the case to the United Nations Security Council

2. Nadav Safran,*The United States and Israel* (Harvard University, 1963), p.170.
3. Ibid., p.189.
4. Samir N.Saliba, *The Jordan River Dispute* (The Hague: Martinus, Nijhoff, 1968), pp.23-24.
5. Ibid., p.26.
6 Quoted in *Israel Government Year Book* (5719/1958), p.6.
7. *New York Times*, (October 6th 1956).

and the seriousness of the matter was soon apparent to the world body. Consequently, the United Nation in cooperation with the United States decided that the unilateral plan of each party should be rejected, in favour of regional development of the Jordan River basin.[8] During the period of Eisenhower in 1953, Jordan River water development became an important aspect of US foreign policy in West Asia.[9] The US presented a proposal to both the Arabs and Israel for the development of the Jordan basin. This proposal came to be known as the Unified Plan. In 1955 Eric Johnston special envoy of the US set out on his visit to West Asia to help the Arabs and Israelis achieve an understanding on sharing the waters of the Jordan. The Kingdom of Jordan was the first country Johnston visited between 25 to 30 August, 1955 because he saw it as the key Arab country which stood to benefit most from the project.[10] After several rounds of discussion the Americans finally managed to persuade the Jordanians to agree to the compromise plan. By the end of September 1955 the individual Arab countries had all approved the 'Draft Memorandum of Understanding' and the Arab League Technical Committee recommended it to the Arab League's Political Committee. After four days of deliberation the Arab League's Political Committee decided not to ratify the Unified Plan.

The Arab rejection was basically a political decision and not a technical one. In Syria a new redical government had just come to office and it feared that the opposition groups would force it out of office if it showed the slightest softening of attitude towards Israel. Damascus, also, had little economic incentive to develop the Jordan Valley as it had access to the waters of Euphrates river. Egypt too, under Nasir, was not willing to give any concessions to Israel as this could be interpreted as weakness on the part of the Arab resolve to eradicate the Jewish State.[11]

With the Arab rejection of the Johnston Plan a multilateral approach to Jordan water development and management thus failed. Meanwhile the Israeli Water Authori-

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8. John Foster Dulles, "Economic Aid to Israel," *Department of State Bulletin*, Vol.29 (November 1953), pp.674-675.
9. Fred J. Khoury, "The US and UN and The Jordan River Issue ," *Middle East Forum* (May1964), pp.20.
10. Cited in Sara Reguer, *Proceeding, First Meeting Amman*, 28 Augest 1955.
11. Sara Reguer , " Controversial Waters : Exploitation of the Jordan River, 1950-80", *Middle Eastern Studies* Vol.29 No.1 (January 1990) pp.66-69.

ties, Tahal engineers and Directors, Mekorot engineers, and special consultants acted together to plan and later execute the National Water Carrier Project. The project consists of a main conduit 105kilometres long, beginning at Eshed Kinrot on the north western shore of Lake Tiberias, where the water is lifted over 250 meters by pumping. The water then travels over 65km via canal and tunnel to the Izalmon pumping station and from there to the operational reservoir at Beit Netofa in the Lower Galilee, where it passes 8km through Shimron, MenasheA, MenashaB tunnels in the Galilee and Menashe Hills. From there the water travels 80km via 108inch diameter pipeline, along the coast, to interconnect with all the smaller reservoir especially that of the Yarkon, at Tel Aviv until it ends in the northern Negev.[12] The total amount of water to be diverted from the Jordan Yarmuk system, according to Israeli authorities will not exceed the amount of water allocated to Israel under the Unified Plan.

Israel remained determined, with or without Arab cooperation, to divert part of the Jordan river waters for irrigation. Consequently in 1956 the National Water Carrier Project for irrigating the Negev was approved and work began in 1958.[13] In early 1958 the East Ghor Canal project was announced, and the United States-after satisfying herself that Jordan would tacitly adhere to the Johnston formula-granted the Kingdom a $4 million grant through the Agency for International Development to complete it. In the early 1960's the Technical Committee of the Arab League formalized a plan to build a dam on the Hasbani relaying its water to the Litani via a tunnel, and to divert the Baniyas southwards to the Yarmuk.[14]

In 1964, the construction was finally started for a dam on the Yarmuk and for diversion of the headwaters of Jordan. After Israel started test pumpings in May, a second Arab Summit Conference was called at Alexandria in September 1964 at which it was decided to build a dam on the Yarmuk at Mukheiba to store water diverted from the Baniyas and Hasbani.[15] With the outbreak of the Arab-Israeli War of June 1967,

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12. Cited in Sara Reguer, One of the best description of the Project is to be found in *Tahal, Summary of Consultations on the Jordan Negev System* (Tel Aviv, 1991).
13. Subhi Kahhaleh, *The Water Problem in Israel and its Repercussion on the Arab-Israeli Cconflict* (Washington, D.C:,1981), pp 30-31.
14. Edward Rizk, *The River Jordan* (New York : Arab Information Centre, 1964) pp. 29-30.
15. Naff and Maston , *Water in the Middle East Conflict or Cooperation ?* (Colorado: Boulder, Westview Press , 1984) p.43 .

work on the Project of diverting River Hasbani and on implementing the proposed plan for irrigation came to a halt.[16]

During the 1967 War, Israel captured the Golan Height from Syria. The Golan Heights, itself has little water resources to offer except the Baniyas river a small tributary of the Jordan. Israeli water strategy has been at the heart of its campaign to retain permanent control of the Golan, since it would assure protection of Israel's Lake Tiberias pumping works. More important, control of the Golan Heights enables Israel to preempt any Syrian or multilateral Arab effort to divert the Upper Jordan back to Arab territory or to develop Yarmuk.[17] In addition Israel has occupied the northern bank to the Yarmuk River boundary between Syria and Jordan, opposite the intake tunnels to Jordan's East Ghor Canal. Had Israel seized the Hasbani in 1967 it would have completed the job of securing the source of Jordan river. With the Dan river inside Israel proper, and the Baniyas captured in June 1967 by Israeli, only the Hasbani lay beyond Israel's grasp.[18]

In the changed scenario, and early in 1972 the Jordanian government formed a committee composed of representatives from various related ministries and departments, to formulate a comprehensive three year plan for the rehabilitation and development of the area. To coordinate and implement various schemes envisaged, a special law was passed early in 1973 setting up the Jordan Valley commission which was soon elevated to the Jordan Valley Authority (JVA) headed by a president of ministerial rank.[19]

In 1987, Jordan and Syria decided on a project to share the run off waters of the Yarmuk River. The plan was initiated by Jordan for which the West bank was expected to provide funds from Israel. The Israelis demand was to participate in the planning, construction and administration of the dam. Basically Israel wanted a share of any additional water that would come as a result of the project. Israel also wanted to pre-

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16. Fredric C. Hoff, *Galilee Divided: The Israel-Lebanon Frontries 1961-1964* (Colorado: Boulder, Westview Press 1985) pp.35-39.
17. Farid Abdel Majeed, *Israel and Arab Waters* (London : Ithaca Press, 1985), pp.54-55.
18. *"The Arab Plan to Divert the Headwaters of the River Jordan"*, Ministry of Foreign Affairs Jerusa lem, April 1965, in Yoneh Alexander and Nicholas N.Kittrie (eds), Crescent and Star : Arab and Israeli Prespectives on the Middle East Conflict (New York: AMS Press, Inc; 1973), p. 28.9.
19. Sara Reguer, *op.cit.*, pp.76.

vent the Jordanians from doing any thing that would block off water to Israel.[20]

Water was a prominent factor at the West Asian Peace talks which began in Madrid in 1991. In subsequent rounds of peace negotiation among different parties, held in Moscow, Vienna and Washington, little headway could be made over the problem of sharing water resources of the region. Syria and Lebanon were unwilling to discuss any issue relating to water until Israel withdrew from the occupied territories. As water is crucial to the survival of the Jewish State, Israel needs to control the Yarkon-Taninim reservoirs which are located on the West Bank. If these sources are handed over to Palestine, it would sharply reduce the water availability in Israel and would make the latter dependent on the emerging Palestine entity.[21] When negotiation began the Palestinians started claiming their right to water, and reallocation of supplies. The Irsaeli government was unwilling to give major concessions. While it agreed that the Palestinians could use little more water, it refused to give up over all control. The Israeli water commissioner was in favour of cooperative use of unused resources and the production of additional water by building desalination plant and coordination of effort to control water degradation problem. Israel stated, if a Palestinian state comes into existence, Israel must control the 2-6km wide hill ridge in the Anabta region since most of the source of ground water are found in the region.[22] In the Vienna round of multilateral negotiations held in May 1992, the Jordanians, Palestinians and Israelis agreed to cooperate and exchange data on water resources. The Jordanian condition was such that, water utilization must be user-related and accord should seek to move from a position of disparity to equitable allocation of water.[23] In May 1993 the third round of multilateral negotiation were held in Washington. A working group on water resources has met seven times, since then which was set up in Washington. In September 1995 an interim agreement was signed wherein, for the first time, the Palestinians were accorded a right to West Bank ground water. The accord also setup a joint Israeli-Pales-

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20. Steve Rodan, " Divided Waters", *The Jerusalem Post Magazine* (September 1995), p. 2.
21. Shebnoti Dadwal Ray, " The Politics of Water in West Asia " , *Strategic Analysis*, Vol . XIX, No.3 (June 1996), p. 472.
22 Natasha Beschorner, " The Jordan Basin and the Litani", Water and Instability in the Middle East , *Adelphi Paper .273*, (Winter 1992-93) p.23.
23. Ibid. p.24.

tinian committee to manage water affairs in the West Bank. [24]

The absence of Syria and Lebanon from the talks has effectively limited the number of areas of potential cooperation and thawarted hopes that full and all encompassing cooperation among the riparian state of the Jordan basin would be developed. In addition, the varying concerns of the regional participants and their differing expectation of this process have burtened the discussion and impeded greater break throughs. In particular, much of the discussion, especially in the early rounds, flounded over the inclusion of water rights as an agenda item. Israel has sought to separate the technical and political aspects of the water issue, regarding the primary object of this working group as to focus solely on technical issue and joint water management, with the aim of increasing the overall supply of water within region. The formulation of solution to the problems of water supply, in the Israeli view, requires the development of a range of functional and technical links between regional experts and officials. The construction of these links should not be impeded by the discussion of water rights and shares which, for Israel, is essentially political issue and therefore should be confined to the bilateral negotiations.[25]

Some progress has been achieved despite fundamental differences, essentially because the Israeli position on the appropriate fora for the discussion of water rights has prevailed. The water working group has confined its activities to developing strategies for managing and increasing the supply of water in the region, and has concentrated its efforts an identifying the appropriate methods to supply adequate water to growing population at an affordable cost? To this end, the parties have focused upon four broad themes, adopted at the first plenary meeting in Vienna, as the starting points for discussion and potential cooperation; (1) enhancement of data availability (2) water management and conservation; (3) enhancement of water supply; and (4) concepts of regional cooperation and management.

In the course of these talks, the parties have become increasingly the aware of need to translate their deliberation into identifiable achievements and move towards

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24. Steve Rodan , *op.cit.*, p.2-3.
25. Joel Peters, *Pathways to Peace: The Multilateral Arab-Israeli Peace Talks* (Great Britain: Biddles Limited, Guildford and King's Lynn, 1996) , p.17

the implementation of specific projects.[26]

2. ISRAEL'S POLICY TOWARDS LITANI RIVER

The Litani, which is in the South of Lebanon has been a major source of friction between the Republic of Lebanon and the State of Israel. The sharing of water of the Litani River has always remained at the centre of a controversy between the two. Though the Litani is a wholly national river, for a water scarce Israel, it has always been a source of great attraction. Time and again, Israel has made repeated attempts to acquire a portion of the Litani's water but with little success. The Israeli water policy is throughout linked with the expansionist and colonialist policy.

During the course of fighting in 1948, Israel was interested in the transfer of water of Litani into Jordan Basin. Annexing Southern Lebanon and the seizure of the Litani water were frequently discussed in Israel cabinet meetings. The Israel-Lebanese Mixed Armistice Commission had been established in 1949. It had very little work to do as the Israeli-Lebanese border, in marked contrast to the Israeli-Syrian or Israeli-Egyptian border, was so quite. However, all this changed due to the six day war of 1967.

(i) AFTERMATH OF JUNE 1967 WAR

The 1967 war extended the length of the Israeli-Lebanese border by about twelve miles, due to the advance of Israeli forces into the Golan Heights. Israeli also occupied the Sinai, Gaza and West Bank during the June 1967 War. Following the War, there was an influx of Palestinian refugees into the south of Lebanon. These refugees soon got organized under the Palestine Leberation Army and stepped up guerilla activities against Israel.[27]

At first the Lebanese government objected to guerilla activities but support for the Palestinians was strong among the Lebanese muslims. Under pressure from the Lebanese muslims the Lebanese government was forced to sign an agreement with the PLO in 1969 giving it certain rights in Lebanon. This agreement is known as the Cairo

26. Ibid ., p.18.
27. Avneer Yaniv, *Deterrence Without the Bomb. The Politics of Israel Strategy* (Lexington:1987), p.59.

Agreement. According to its terms which were supposed to be kept "secret" the Lebanese Army agreed to allow the Palestinian guerillas free access to Syrian supply lines and relaxed restrictions previously placed on the refugees camps. It legitimized the right of the PLO to maintain centres in Lebanon. No other Arab Government had ever agreed to such an arrangement before. The Cairo agreement therefore caused consider able alarm in Israel.[28] Due to the strong internal and external support to the guerillas, the Government of Lebanon found it difficult to control Palestinian guerilla operations against Israel from Lebanese territory. In retaliation Israel initiated a series of raids against the Palestinians and the local Lebanese Shi'ite population in the south. These raids created extreme insecurity in the South and led to considerable loss of life and property. On 6th March 1970 Israeli Northern District Commander, Major General Mordechai Gur, warned that it would turn a six miles stretch of Southern Lebanon bordering Israel into a scorched-earth desert.[29] On 15th October 1972, Israel launched air attacks against Palestinian bases in Lebanon. It was announced that it would no longer wait for commando acts or terrorist incidents before striking targets in Lebanon. The presence of terrorists in the area between the border and the Litani River is a provocation, so Israel is free to act against them. In the long run the Israeli raids were instrumented in the break down of the Lebanese political system and onset of Civil War in 1975. The civil war resulted in widespreads physical destruction, and the collapse of the country's fragile political system. The war started as a confrontation between the Maronite militia, eager to restrict or eliminate the troublesome Palestinian presence in Lebanon, and the Fedayeen. The civil war provided an opportunity to Israel to surreptitiously implement its long standing scheme with regard to the Litani. In South of Lebanon it quietly setup a Christian militia which was to act as a surrogate of the Israeli Army.[30]

In early 1976, as it became apparent that Syria was about to intervene in the civil

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28. For the Text of the Agreement See *Al-Nahar*, 20 April 1970 Cited in *Arab World*, 20April 1970. *Al-Nahar* for the first time published the full text of the Cairo Agreement which through the Minister of Information Would not Concede it was Apprently Authentic. *Al- Nahar* was Prosecuted by the Government for having Published the Agreement.
29. Lester A. Sobel, (ed), *Palestinian Impasses : Arab Gurerillas and International Terror* (New York:1977), p. 91.
30. See *Arab Weekely*, June 1972, pp.1-3 and see also Sobel, Ibid., p.144.

war, Israeli Prime Minister Yitzhak Rabin announced a red line in Lebanon, South of which the Syrain forces would not be permitted to move. The location of the line was not clear but it was widely presumed that "red line" was the lower course of the Litani River, as it flows in a westerly direction towards the sea across most of South Lebanon.[31]

On 19 July 1976 Defense Minister Shimon Peres announced a new Israeli policy. It was know as the 'good fence' programme. The good fence programme had three aspects: humanitarian relief for the beleaguered residents of Southern Lebanese border Villages; the restriction of all non-Lebanese military forces from the southern area; the third aspect of the good fence programme was the creation of a pro-Israeli Southern Lebanese militia to aid in barring the reintroduction of Fedayeen commandos. This militia was headed by a renegade, Lebanese armed forces personal Major Saad Haddad.[32] In February 1977 Severe fighting broke out South Lebanon, as Haddad's rightist militia attacked Palestinian and Lebanese leftist position in the villages of Kafr Tibnit and Ibil as Saqy, north of Israel's Hula Valley. Since July 1977, attacks and counterattacks continued with Israel.[33]

(ii) ISRAEL'S INVASION OF LEBANON: LITANI OPERATION

On 11th March, 1978 eleven Palestinian terrorists arrived by sea into northern Israel, a point 30 kilometres south of Haifa. They killed a woman strolling along the beach and seized an Israeli bus near the Tel-Aviv highway. In the resulting confrontation 35 passengers were killed and a number of people wounded. The incident of 11March sent a wave of outrage throughout Israel. A massive Israeli response was inevitable. Although the entire world recognized the inevitability of a super-retaliation against Lebanon, the scope and intensity of the Israeli operation which commenced three days later took everyone by surprise. Just before dawn on 14th March, Israeli artillery opened up on Lebanese villages held by the Palestinians and leftists.[34] The shelling was followed by a

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31. *Area Hand Book for Lebanon* (Washington :US Government Printing Office, 1978), p. 297.
32. Hirsh Goodman, "Israel Focus Holding Southern Lebanon", *Jerusalem Post* (21 March 1978), p.7.
33. David Gilmour, *Lebanon: The Fractured Country* (Oxford: Martin Robutson, 1983), p.148.
34. *Arab Report and Record* (1-15 March 1978), No.5, p. 184.

ground attack with approximately 20,000 Israeli soldiers advancing on five axes.[35] The Israeli forces consisted mainly of regular infantry and paratroopers units.[36] According to Ezer Weizmann the operation and plans worked out by the Israel Defense Forces (IDF) were to operate against Palestinian terrorists and their bases all along the Lebanese-Israeli border upto distance of 10 km inside Lebanon. The original objective of the invasion was achieved in the first day itself. The whole area along the border to a depth of 10km inside Lebanon was occupied by the IDF. As the Israeli forces moved towards north, Haddad's militia followed in their wake, looting the Shi'ite villages which had successfully held out for so long.[37]

On 19 March, just when it seemed that the operation was coming to an end, the IDF suddenly broke out of the buffer zone towards the Litani River, and by evening Israel controlled the entire area from its borders to the Litani river except for the town of Tyre. According to an Israeli source, the new advance was designed to carve out a PLO-free security belt in the 1200 square kilometres between Israel's northern border and the Litani River. In reality, however, it was international politics that had played the crucial role in the decision to expand the operation.

On 15 March, the Lebanese government launched a complaint to the UN Security Council and the following day the US gave a call for an immediate Israeli withdrawal. On the same day the US proposed before the UN that the Israeli forces at present in Lebanon be immediately replaced by a UN force. When the US resolutely pushed for a UN Security Council resolution calling for an Israeli withdrawal and the despatch of UN troops to South Lebanon, the Israeli government was taken by surprise. The Israeli thrust towards the Litani was, therefore, seen by many as an attempt to achieve the maximum possible before the vote on the proposed UN Security Council Resolution. This would increase the area, the Israeli government could trade with the UN and leave manoeuvring room to fall back on all the way to its recently created security belt.[38] Given the size and intensity of the Israeli operation, it is obvious that Tel Aviv's deci-

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35. Hirsh Goodman, "Israel Focus Holding Southern Lebanon" *op.cit.*, p.7.
36. It was at this Stage that the Name of the Invasion was Changed from ' Stone of Wisdom to Operation Litani. Anan Safardi, *Jerusalem Post Magazine* (7April 1978), p.4.
37. Walid Khalid, *Conflict and Violence in Lebanon: Confronation in the Middle East* (Harvard, 929),p.130.
38. Ibid., pp125-26.

sion to invade Lebanon was not a spontaneous reaction to a particularly gruesome incident of Palestinian terrorism but had been made much before the incident of 11 March. The three days gap between the Palestinian raid and the invasion gave the PLO sufficient time to move its forces to buffer zones in the north. A liquidation strategy would have called for surprise seizure of the Litani by amphibian and helicopter-borne troops to cut off the PLO forces lines of retreat.[39] The IDF also abandoned its traditional strategy of high mobility, preferring instead to advance its mechanized infantry very cautiously behind a devastating wall of casualities. It maximized non-combanant deaths and civil destruction and permitted the great bulk of enemy commandos to cross the Litani River to relative safety. Finally, the IDF's treatment of Tyre also was at variance with the declared Israeli objective of liquidating the PLO.[40]

(iii) A REVIEW OF UNIFIL'S ROLE PRECEDINGS JUNE 1982 INVASION

On 19th March 1978, hours after the IDF had began to move towards the Litani, the UN Security Council adopted Resolution 425. The two key points of the resolution which was sponsored by the US, were (i) a call upon Israel to immediately "cease its military action against Lebanese territorial integrity and withdraw its forces from all Lebanese territory," and (ii) the establishment of a United Nations Interim Force for Southern Lebanon for the purpose of "confirming the withdraw of Israeli forces, restoring international peace and security and assisting the Government of Lebanon to establish effective authority in the area".[41] The Israeli Defense Minister Ezer Weizmann met with General Ensio Siilasvuo, commander of United Nation Truce Supervision Organisation (UNTSO) and Major-General Emmanuel S.Erskine commander of the newly oppointed UNIFIL. At this meeting the following point were agreed upon between Israel and the UN officer.[42]

(i) The area run by the IDF in the second stage of the invasion would become a buffer

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39. *News Week* (3 April 1978), p.42.
40. For the complete text of Resolution 425, See *Arab Report and Record* No.6 (16-31 March 1978), pp. 221-225.
41. Ibid., p.225.
42. The Blue Helments, *A Review of UN Peace-Keeping* (New York: 1985), Chapter IV.

zone; (ii) UNIFIL would be responsible for patrolling the buffer zone; and (iii) the strip of territory lying between the Israeli-Lebanese boundary and the UNIFIL buffer zone would be designated as a "peace zone" to be patrolled by the militia of major Haddad and units of the Lebanese army.

The first contingent of UNIFIL consisting of element of the Swedish infantry battalion entered Lebanon by way of Israel on 22 March 1978. In the months of April to June, an international force began to take up positions south of the Litani.[43] The Israeli withdrawal called for by Resolution 425, took place very slowly and in several stages beginning on 11 April. By 30 April, Israel had turned over to UNIFIL around 550 square kilometres of Lebanese territory and was left in control of the security belt seized during the first phase of invasion[44] (See Fig. 14). On 13 June, as promised the IDF formally ended its ninety-one day occupation of southern Lebanon. In a military ceremony at Meis al-Jabal the Israeli flag was lowered. However, the security belt occupied by the IDF was handed over not to the UNIFIL but to Haddad and his militia. Soon after the IDF withdrawal, the Lebanese government decided to despatch a army contingent to the to the south to establishment a symbolic authority as well as supplement the UNIFIL effort in policing the area.

In July 1978 when the Lebanese government decided to despatch a force of the Lebanese army to south it was bombarded by Haddad's militia and prevented from advancing beyond the town of Kawkaba. After protracted mediatory efforts, two Lebanese battalions reached southern Lebanon in 1980. They were deployed in the UNIFIL'S area of operation.[45]

A review of UNIFIL's role makes it clear that it could not successfully implement the UN Mandate. Of course, it confirmed the withdrawal of Israeli forces from Southern Lebanon, but it could not deploy over the whole of Southern Lebanon, nor could it hand the area back to the Lebanese government. UNIFIL could not implement all of its mandate because the necessary cooperation was not forthcoming within its immediate

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43. Hirsh Goodman, "Israeli 'Guidelines' for Lebanese Troops" *Jerusalem Post* (1Augest 1978), pp.1-2.
44. Ramesh Thakur, *International Peace-Keeping in Lebanon: United Nations Authority and Multina tional Force* (Colorado: Boulder, Westview Press, 1987), pp. 42-43.
45. Pelecstic A nathan, *Peace-Keeping On Arab-israeli Front: Lesson From the South Lebanon* (USA:1984), p.18.

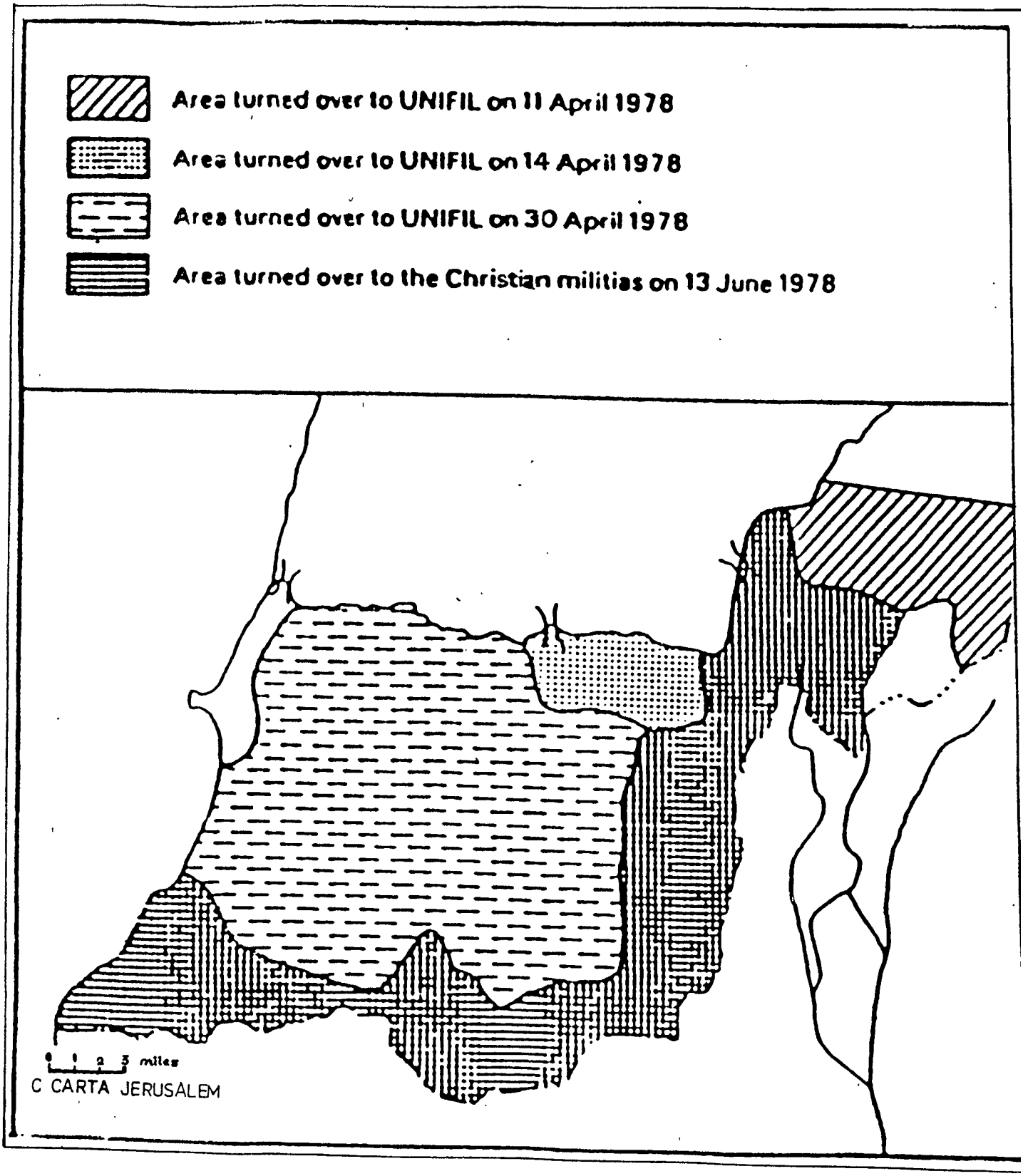

Figure : 14

Source : Middle East Contemporary, (ed) by Colin Legum, Vol. II, 1977-78

surroundings. Infact, the Lebanese government was not in a position to impose its will effectively due to its own weakness. Israel was not interested in cooperating with the UNIFIL because from the beginning, Israel perceived that it had been imposed on it without Israel's case being heard. While the Israeli forces were still carrying out the Litani operation, the US and the UN initiated the formation of peace keeping force without getting Israeli assent. UNIFIL, thus was formed on the basis of a unilateral Security Council decision, and not as a result of an agreement between the hostile parties. UNIFIL could not use force either against Israel or its surrogate Saad Haddad's Southern Lebanon Authority nor against the PLO.[46] Throughout its active life from March 1978 to the Israeli Invasion of June 1982, UNIFIL constantly experienced great difficulties. (See Fig.15)

(iv) ISRAEL'S INVASION OF LEBANON: OPERATION PEACE FOR GALILEE

In June 1982 Israel lunched a massive land, sea and air invasion of Lebanon *code named Mivtsa Shalom ha Galilee* (Operation Peace for Galilee) At the beginning of this invasion Israeli spokesman announced that their aim was to drive the PLO beyond a line twenty five miles from the border so that it could no longer be within PLO artillery range.[47] Within a few days, however, the Israeli army had gone well beyond the twenty five mile zone.

The operation was not a limited one like the March 1978 invasion. There were deeper and more fundamental objectives associated with this second Israeli invasion of Lebanon. These were (a) cruising and destroying the PLO both as a military and political force in Lebanon (b) inflicting a humiliating defeat on the Syrian army in Lebanon so as to affect its total or partial withdrawal (c) installation of Bashir Jumayil as the President of Lebanon and (d) signing a peace treaty with Lebanon.[48] This treaty would satisfy two long-standing Israeli ambitions with regard to Lebanon. First it would accord diplomatic recognition and record it would provide effective Israeli control over

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46. *Jerusalem Post* (7 June 1982).
47. Natasha Beschorner *op.cit.*, p.26.
48. Naff and Maston *op.cit.*, p.76.

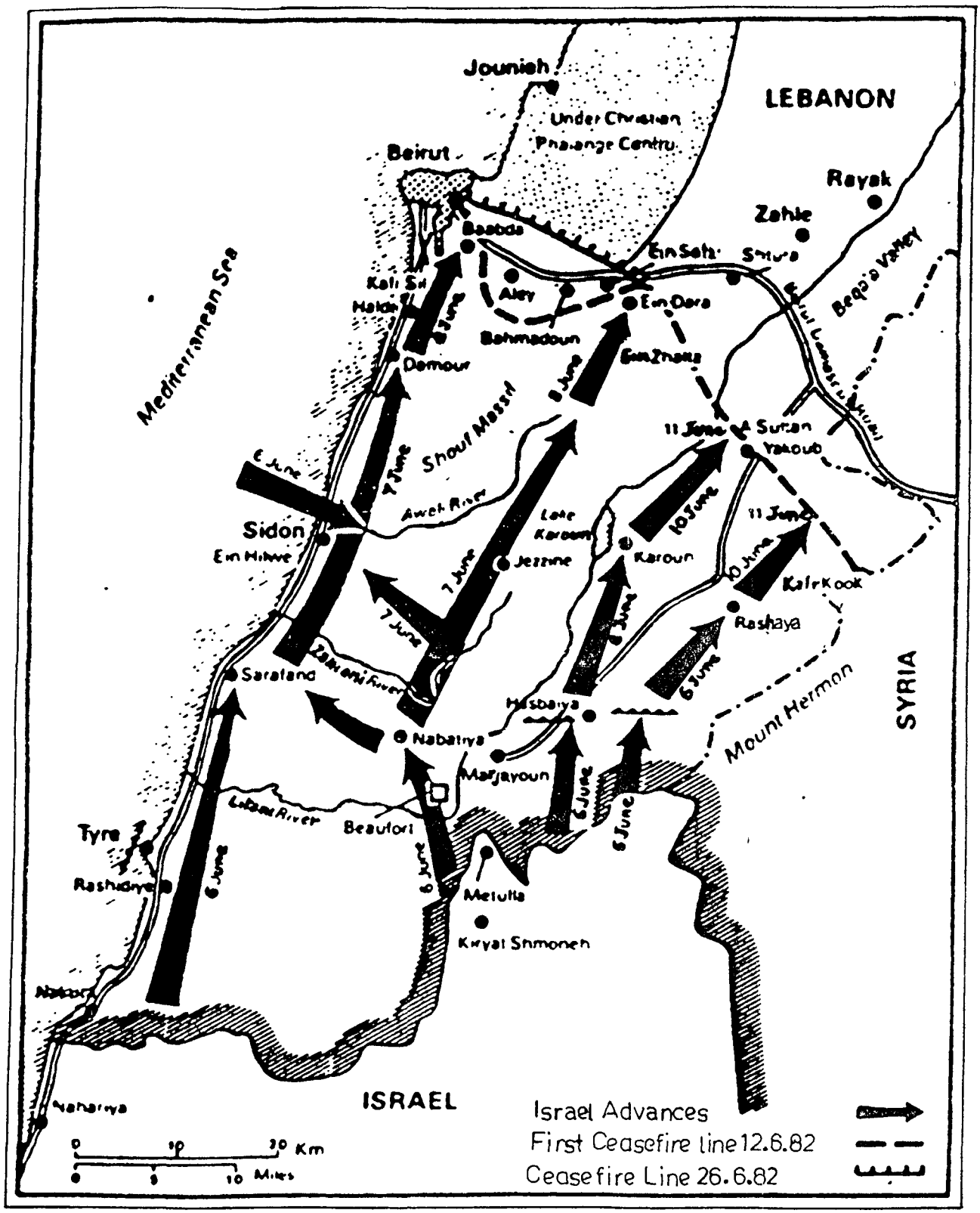

Figure : 15

Source : Middle East Contemporary ,(ed) by Colin Legum, vol.I 1981-82

south Lebanon.

Following the 1982 invasion, Israel's hold over security zone was further consolidated. It was during the post 1982 period that Israel carried out extensive hydrological and technical studies, aimed at diverting part of the Litani's water into northern Israel.[49] The IDF which had withdrawn to a line on the Awali river in September 1983 was soon confronted with a new challenge. The shi'ites of South rose up in revolt against the continuing Israeli occupation. In January, 1984 Haddad died of cancer. Antonie Lahad who succeeded Lahad turned Haddads militia into a regular army. The SLA was, however, no more successful in eliciting shi'ite cooperation than earlier Israeli efforts. In 1984 there were over nine hundred attacks on the IDF in Southern Lebanon taking a heavy toll of Israeli soldiers. At the same time Israel began to isolate the south from the rest of the country by completely sealing off the bridges on the Awali river. On 18 February 1985 Prime Minister Simon Peres succeeded in getting the cabinet to approve a staged withdrawal from Lebanon.[50] The first stage which was to be completed in five weeks envisaged an IDF withdrawal from the Sidon area to a line on the Litani. In the second stage the IDF would withdraw from the Jabal Baruk and reposition itself in the Hasbaya area. In the third and final stage the IDF would withdraw from the area between Tyre in the west and Hasbaya in the east. This phase was, however, dependent, on the ability of the SLA to take charge of the security belt. Even if the SLA proved effective, the IDF would maintain its presence in the from of advisers and intelligence installation inside Lahad's territory. This phased withdrawal was completed as per schedule. The third phase proved to be a little problematic as the SLA was unable to exhibit the required whesiveners or military process which the Israeli desired. The result was that the IDF had to come to its aid whenever the challenge from shi'its of the south mounted.[51]

3. POLITICAL DISAGREEMENT OVER WATER RIGHTS IN THE EUPHRATES-TIGRIS BASIN

The Euphrates-Tigris rise in the mountains of the southeastern Turkey. Both are im-

49. Naff and Maston *op.cit.*, p.76.
50. Avner Yaniv, *Dilemmas of Security: Politics, Strategy and the Israeli Experience in Lebanon* (Oxford: 1987), pp. 42-44.
51. Peretz Kidron, "Israel's Withdrawal Plans", *Middle East International*, No. 292 (25 February 1985), pp.4-5.

portant international rivers, which have tremendous regional importance. Control of these rivers has become increasingly contentious, as the demand for water keeps on increasing every year, in this arid region.[52] The economic prosperity of Turkey, Syria and Iraq depends on the two rivers, as they constitute the principal source of hydro-electricity and agricultural development. A proliferation of multipurpose dam projects, combined with competition for regional, political and economic leadership is a permanent source of tension in the Tigris-Euphrates basin. As an upstream state Turkey has sought to exploit water in its territory, thereby causing acute concern to its down-stream neighbours. The relations between Turkey and Syria have been strained many a times, mainly due to the formers efforts to control the flow of the rivers.[53]

There are no tripartite treaties between the riparian states of the Tigris-Euphrates basin in relation to the allocation or exploitation of the river waters. The treaty of Lausanne in 1923, included a provision that Turkey must consult Iraq before undertaking any hydraulic works. The 1930 treaty of Aleppo gave Syria certain water rights on the Tigris.[54] An attempt was made by Turkey to conclude an agreement with Syria in connection with the use of Euphrates waters. The concessions made by Turkey were considered to be inadequate by the Syrians and the treaty could not be concluded. The two countries are also at loggerheads over Syria's claim over the Hatay province, which was ceded to Turkey in 1939.[55]

The 1946 Ankara Treaty of Friendship and Good Neighbourliness, signed between Turkey and Iraq, stated that Iraq was to be consulted before Turkey carried out any development project on the Tigris-Euphrates. Although in 1962 Syria and Iraq formalized a Joint Technical Committee, however its role was limited, as no major hydraulic works were carried out during this period. In September 1965, a tripartite meeting was held in Baghdad and at this meeting, Iraq is said to have demanded 18,000 MCMY of Euphrates water, Syria 13,000 MCMY and Turkey 14,000 MCMY. In early

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52. Natasha Beschorner , The Tigris-Euphrates Basin Region Water and Instability in the Middle East", *Adelphi Paper 273* (Winter 1992-1993), p.27.
53. Shebonti Dadwal Ray, The Politics of Water in West Asia ", *Strategic Analysis*, Vol.XIX, No. 3 (June 1996), p. 474.
54. Natasha Beschorner , *op.cit.*
55. P.H. Gleick, "Water and Conflict, " *International Society*, Vol. 18, No.1(Summer 1993), pp.88-89.

1967 Iraqi and Syrian were very acquisitive in regard to water allocation, with Iraq demanding 16,000 MCMY from Syria and Syria insisting that Iraq needed no more than 9,000 MCMY.[56]

Due to the inability of the three riparian states to reach formal agreement to share water the 1970's witnessed several clashes between Turkey, Syria and Iraq over sharing right.[57] A serious disagreement relating to water, arose in 1975 between Iraq and Syria over reduction in Euphrates flow as a result of the completion of Syria's Tabqa dam. During the dry season when the Turkish and Syrian dams impounded part of the Euphrates spring flood, a major crisis developed between Syria and Iraq that brought the two countries to the brink of war. Baghdad said the Euphrates flow fell from a normal 29,013 MCMY to 6,213 MCMY endangering the livelihood of three million farmers of Iraq who depended on the river for irrigation water. Iraq and Syria traded hostile statements in which Iraq threatened to take any action necessary to insure the Euphrates flow and Syria protested that it was passing on to Iraq 71 per cent of the water it received from Turkey. At the end of April 1975 a technical committee was formed by the Arab League, which had representatives from Syria, Iraq and seven other Arab States to look into the matter and solve the dispute in an amicable way.[58]

As tension subsided, between Syria and Iraq, a new round of hostilities erupted between the riparian states and this time it related to the construction of the Karakaya Dam in Turkey. During the late 1970's and the early 1980's Baghdad and Damascus complained against Ankara that it was holding back a main part of the water from the Euphrates for its use. In 1978, Iraq insisted that Turkey should agree that the Euphrates would continue to flow regularly, before Iraq would agree to talks regarding the oil debt issue.[58] As a matter of fact Turkey gave the necessary guarantee in August 1978, and an agreement was concluded providing for the resumption of oil supplies and for repayment by Turkey of its debts with wheat exports. Following this agreement the Energy Minister of Turkey, Deniz Baykal announced that a joint commission would soon be setup to examine Iraqi water demand. In this way, Ankara wanted to accom-

56. Thomas Naff and Ruth Maston, *Water in the Middle East Conflict or Coopeation* (Colorado: Boulder, Westview, 1984),p.93.
57. Ibid., p.93.
58. Ibid., p.94.

modate Baghdad. Nonetheless after the Gulf War broke out in September 1980 Baghdad continued to demand ever more water arguing that its new eight year irrigation and development plan for northern Iraq required additional water. Ankara promised to do its best to satisfy Baghdad.[59] During the same period Damascus also stepped up its demand for a greater share of the Euphrates water. Consequently the World Bank refused to finance Ankara's GAP project stating that Turkey should work-out a riparian treaty with its neighbours before undertaking the project.[60]

The work on the South Eastern Anatolia project in Turkey began in the early 1980's. The project aims at harnessing the waters of the Euphrates and Tigris rivers to irrigate 1.7 million hectares of land and to build 18 hydroelectric stations. The centrepiece of the project is the Ataturk Dam, which cost $2300 million and is the world's ninth largest dam. The whole Anatolia project is to be completed by 2005 at a cost of $32000 million. The Project treats the Euphrates-Trigris as one single Basin.[61] The intention of Ankara was to build 22 dams on the Euphrates within the framework of southeastern Anatolia Project (GAP). The main aim of the South Eastern Anatolia Project is to boost agricultural and agro-industrial production for export and to raise the standard of living of the Kurdish people in region.[62]

In 1982 a joint technical committee was established by Turkey and Iraq. Syria joined it in 1983. The committee has met fifteen times for general discussions and exchange of hydrological data, but it has been unable to solve the problem of competing claims by the sharing states.[63]

In October 1984 a 'Hot Pursuit' agreement was signed between Turkey and Iraq, where by both sides could 'pursue subversive groups in the territory of the other up to five km. Turco-Syrian rapprochement was started in March 1985 which gained further momentum when the Syrian Prime Minister Adb-Al-Rauf Al-Qasm's visited Ankara in March. 1986. He pointed out that the water of Euphrates was very important to Syria

59. Suba Bolukbashi, " Turkey Challenges Iraq and Syria : The Euphrates Dispute", *Jour nal of South Asian and Middle East Studies,* Vol. XVI, XI0.4 (1993), pp.9-11.
60. Cited in Suba Bolukbashi, *Ankara Domestic Service* , July16, 1987, in FBIS/WE (July 17,1987),6p.61.
61. Naff and Maston *op.cit.*, p.95.
62. Natasha Beschorner *op cit.*, p.30.
63. Shebnoti Dadwal Ray, *op.cit* , p.474.

and also implied that if during the building of major dams of GAP Turkey retained additional Euphrates water, Syria would retaliate with other means. During offical negotiations regarding Syrian demand for water, the Turks were in favour that Ankara should provide sufficient water not less than 15,768MCMY from the Euphrates even during the accumulation of water at the Karakaya and Ataturk dams.[64] The Turkish Project for exploiting the Euphrates is seen as disadvantageous to both Syria and Iraq. The centre-piece of this scheme is the Ataturk Dam, which will be the fifth largest rock-fill dam in the world and will irrigate an area of 875,000 hectares. A trilateral committee was set up to look into the issue of water allocation to those states. By the end of 1989 the technical committee had met fourteen times but had failed to reach a trilateral agreement on the utilization of the Euphrates waters. Syrian and Iraqi worries about the water that GAP would leave them with seemed justified when in November 1989 Turkey informed Syria and Iraq that in order to impound the Ataturk dam it would divert the Euphrates between January 13 and February 13, 1990. During the impoundment Syria would receive 3,784MCM, from the tributaries below the dam. Ankara explained the technical reasons for the move as well as what measures it would take to prevent any possible adverse effects on as Iraq and Syria. They wanted more information and a meeting was held in Damascus at the end of November 1990 between officials from the three countries. Technical information was provided by Turkey, but it refused to bargain over the amount of water to be released and the period of impoundment.[65]

Turkey has adopted an assertive position on the issue of Euphrates water rights. It is determined to go ahead with its development projects without the cooperation if Iraq and Syria. According to the Turkish Primer Suleyman Demirel, Turkey is justified in taking advantage of its position as an upstream user of water resources. However, he pointed out that his country was willing to cooperate on joint ventures with the downstream states. Turkey has tried to link a deal on Euphrates to one on the Asi; which would imply Syrian recognition of Turkey's jurisdiction over the province of

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64. Cited in Natasha Beschorner, *Protocol on Matters Pertaining to Economic Cooperation between the Republic of Turkey and the Syrian Arab Republic* , Official Gazette, Turkey (1987).
65. Suba Bolukbashi, *op.cit.*, p.23.

Hatay. Syria and Iraq reiterated their calls for a trilateral as at the most recent meeting of the Joint Technical Committee in Damascus in September 1992, the first since the Kuwaiti crisis. The meeting ended in deadlock amidst accusations of Turkish intransigence. The Turkey argued yet that Iraq and Syria were receiving adequate quantities of water and that they should use their water supplies more efficiently.[66]

Syria as well as Iraq have opposed the project from the beginning, for it views negotiations were held between Turkish and Syrian in September 1992 at which both sides reiterated their commitment to border security; Syria stated that it had outlawed Kurdish rebel activities in territory under its control. The long term significance of these developments remains to be seen.[67]

CONCLUSION

Since ancient times, the struggle between riparian state for the water of the West Asian rivers has been a crucial problem. Thus, the scarce water supply of the rivers in arid region has represented one facet of the multidimensional conflict between riparian states of the West Asian region.

The competition to control the Jordan River is intense as this is the major source of water in a water-scarce region. On the one side is Israel and on the others are a member of Arab State. The political hostility between Israel and the Arab State has spilled over to the issue of sharing water so much to that waters of the Jordan have become emirate in controversy since the establishment of the Jewish State.

Facing acute water scarcity, the state of Israel ever since its establishment, has sought to acquire a major part of the water of the Jordan. Having faced prepretual hostility from its Arab States, Israel considers the control over water supply as a strategic instrument and defensive technique that greatly affects regional balance of power. Israel has persisted in her plans to divert the Jordan River out of the water and area to the Negev desert. This was the major feature of the National Water Carrier Project. The first stage started almost immediately after the Armistice Agreement of 1949 and

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66. Natasha Beschorner, *op.cit.*, p.42.
67. Ibid., p.37.

it gave partial access to the headwaters of the Jordan.

The Johnston 1955 Unified Plan rejected by Arab League which was based on a multinational approach to Jordan water development and management.

Throughout the 1950's and early 1960's the US along with the UN kept an trying to convince with the Arab and Israelis of the need to adopt a multilateral and cooperative approach, However, neither of them were in a mood to relevant with the result that each party tended to proceed with their unilateral schemes. This confrontationist approach was bound to lead to conflict sooner or later. The third Arab-Israel War of 1967 was partly the result of rising tensions over the issue of sharing of the Jordan. In the 1967 war, Israeli captured the West Bank, Gara Strip, Golan Height.

The Litani, which is in the south of Lebanon has been a major source of friction between the Republic of Lebanon and the state of Israel. The sharing of water of the Litani river has always remained at the centre of a controversy between the two. Though the Litani is a wholly national river, for a water scarce Israel, it has always been a source of great attraction. Time and again, Israel has made repeated attempts to acquire a portion of the Litani's water but with little success. After the 1967 Arab Israeli War Lebanon became the most important base for Palestinian guerilla activities against Israel. In order to counter Palestinian raids, its initiated a policy of retaliatory raids against guerilla basis in Lebanon since early 1970.

The Israeli raids were instrumented in the break down of the Lebanon political system and break-out of Civil War in 1975. In March 1978 Israel launched a massive invasion of Lebanon code named operation 'Stone of Wisdom'. According to Ezer Weizmann the operation and plans worked out by the Israeli Defence Force (IDF) were to operate against Palestinian terrorist and their bases all along the Lebanese-Israeli border up to distance of 10 kilometres inside Lebanon.

The Israel invasion led to the setting up of the UNIFIL which was deployed in South Lebanon to oversee Israel withdrawal and act as a buffer between the combatants. Though UNIFIL could not be deployed in the whole southern Lebanon, as required by mandate, it took active steps to ensure that as far as possible its area of operation continued to remain under its control. UNIFIL did not use force either

against Israel or its surrogate Saad Haddad's South Lebanon Army nor against the PLO. Throughout its active life, since March 1978 to Israel invasion of June 1982, UNIFIL functioned with great difficulties. From time to the leadership of the PLO gave assurances of its intention to cooperate with UNIFIL but, attempts by Palestinians and Lebanese armed elements to enter the UNIFIL area of operation were a recurring feature. After the Second Israeli invasion of Lebanon in 1982 code named operation 'Peace for Galilee' the Israeli forces established a security zone in southern Lebanon including the Litani Wazzani, Hasbani river. It was handed over to Israel's portage major Saad Haddad.

Water was an important item on the agenda of the multilateral talks which began in Madrid in 1991. At the subsequent rounds of negotiations Israeli government showed a willing to withdraw from southern Lebanon in return for assured water supply from the Litani But Lebanese government was unwilling to give any concessions. In Vienna round of multilateral talks held in May 1992, the Jordanians Palestinians and Israelis agreed to cooperate and exchange data on water resources. The Jordanians insisted that water utilization must be user-related and an accord should seek to more from a position of disparity to equitable allocation of water. The working group on water resources has met seven times, most recently in Amman in June 1995. Though the participants are far from an agreement there are indications that a ,consensus is gradually evolving. The Euphrates and Tigris are international rivers. These have immense regional importance. The economic prosperity of Turkey, Syria and Iraq revolve around the two river as they constitute the principal source of hydropower and agricultural development. As an upstream state Turkey has sought to exploit water in its territory, thereby causing acute concern to its downstream state. The relation between Turkey and Syria have been strained many a times mainly due to formers efforts to control the flow of the rivers. During the dry season when the Turkish and Syria dams impounded part of the Euphrates spring flood, a major crisis developed between Syria and Iraq that brought the two countries to the brink of war Iraq and Syria traded hostile statements in which Iraq threatened to take any action necessary to regulate the Euphrates flow. In early 1980's Iraq and Syria complained against Turkey that it was

holding back a part of the water from the Euphrates for its use. In 1982 a Joint Technical Committee was set up by Turkey and Iraq. Syria joined it 1983. The committee had discussed fifteen times on exchange of hydrological data, but the problem of water allocation however has not been solved so far. Turkey's assertive position on the issue of Euphrates water right is unacceptable to both Syria and Iraq. They have therefore spurned Ankara's offer of joint adventures as long as their legitimate rights are not recognized by the Turkish government.

In the 1990's the problem of sharing Euphrates water has become more complicated as Syrian and Turkish irrigation works are nearing completion and sewage and industrial development in the two countries threaten to lower water qualities grown up phenomenally the recent years. Growing population is also a source of water concern as the demand for domestic use has polluted the water quality and quantity day by day.

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CHAPTER: IV

INTERNATIONAL LAW AND THE EQUITABLE SHARING OF RIVER WATERS AMONG RIPARIAN STATES

CHAPTER: IV

INTERNATIONAL LAW AND THE EQUITABLE SHARING OF RIVER WATERS AMONG RIPARIAN STATES

Water is an essential natural resource and since the begining of this century several long standing conflicts have emerged over equitable water distribution among states sharing international rivers.

Historically, decisions relating to use of water resources have been made independently of most other land use management decisions.[1] Law provides a perfect machinery for the peaceful resolution of disputes, offering accomodation of correlatives rights of each country. The evolution of International River Laws has taken many centuries and the process still continues. A number of principles and treaties for management, sharing, utilization and conservation of international water resources have been codified during the past two centuries.

International Water Law which forms part of international law itself, has emerged from various sources, such as Article 38 of the statutes of the international conventions, international custom; the general principles of law, and the decisions of International tribunals including aribitral awards. To these source should be added the law making activities of international bodies and the resolutions and recommendations of inter-governmetal organisations.[2]

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1. Dante, A.Coponera, International River Law, Munir Zaman (ed), *River Basin Development* (Dublin: International Publishing Ltd, 1983), pp.173-177.
2. Thomas Naff and Maston, *Water in the Middle East Conflict or Cooperation?* (Colorado: Boulder, Westview Press,1984), p.158.

Numerous rivers cross several state boundaries and it is necessary to distribute the water of those rivers among the various state which they cross. Water rights depend on, and vary with, a country's system of law. The development of water resources in any country or state must involve relevant legislation and subsequent institutions to control that development.[3]

The riparian right system has developed from early times. Basically, a right to use water comes from the occupation of land bordering a water course, such land being termed riparian land. A customary law may be applied in this condition.

Broadly speaking, a riparian owner has claim to the benefit of the natural flow of the watercourse bordering his land. The state should take water from its immediate upstream neighbour and fellow riparian owner without a material change in its quality and quantity and pass it on to its downstream neighbours in a similar state. It is entitled to the use of the water, which flows past its riparian land for its ordinary use. It is generally accepted as being for the purpose of domestic use.[4] In case of conflict over the distribution and use of river water flowing through more than one potential unit, the criteria of prior use, of historic rights and relative requirements have been advanced as equitable standards. They have been invoked in various controversies between sharing states.[5]

During the mid 19th century, arbitration of international dispute was not common. However, by late 19th century, it was becoming increasingly common but was done on an ad-hoc basis. In International Law, a distinction is normally drawn between national and international rivers. A river, which passes through or along the territory of two or more states is described as international river and is governed by the rules of the international river law. A river, which flows entirely within the territory of a sin-

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3 Samir N. Saliba, *The Jordan River Dispute* (TheHague: Martnus Nijhoff 1968), pp.48-49.
4. Dante A Coponera, *op.cit.*, pp.175-176.
5. Oscar , Schachiter, *Sharing the World's Resources* (New York: Columbia University Press, 1977), pp.64-65.

gle state is described as a national river.[6]

1. WATER TREATIES ON EUROPEAN CONTINENT

Europe was the first continent which witnessed sharp differences over the sharing of waters of international rivers as the thrust for harnessing water for industrial and economic development in the 19th century gained momentun. In most cases these disagreements were solved through negotiations. The agreement between Turkey and Austria in 1619 over Danube River and between Germany and France in 1697 over Rhine were among the early landmarks in the making of modern International Law on navigation.[7] Much later, in the 19th century two commissions were setup— the European Commission on the Danube and the Central Commission on the Rhine-to regulate navigation on these two rivers.[8] The Rhine and Danube Commission were primarily administrative bodies related with navigation issues.

In 1916, Holland, affronted with the final act of the Congress of Vienna, strived in the name of its sovereignty to render delusory the rights of the riparians of the Rhine. Between 1816 and 1956, Germany concluded approximately twenty water treaties with its neighbours.[9] The principle that was recognized in all these treaties was that no state may take measures on its own territory concerning an international water course which will affect the flow of water in the territory of another state to the disadvantage of the latter. This rule has come to be recognized in International Law.[10] For instance, Article 21 of the treaty between Germany and Czecho-

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6. G. Kaeckeabeek, *International Rivers* (London : Oceana Publishers, 1962), p.1.
7. B.G. Berghese, "Water Laws and Compacts", Berghese (ed), *Waters of Hope-Integrated Water Resources Development within Himalayas Ganga Brhamaputra Bank Basin* (New Delhi : IBH Publishing & Co.1990), p.307.
8. Moore, John Basset, *A Digest of International Law House Doc No.551*, 56th Congress 2 session (Washington: 906) Vol. 8, p.628 Chacko, The International Joint Commission (New York : 1932)and see also Chamberlain, *The Regime of International Rivers: Danude and Rhine*(New York : 1923), pp.185-186.
9. F.J. Berber, *Rivers in International Law* (London: Stevens & Sons Limited, 1959), p.140.
10. Quoted in Berber, *op. cit.*

slovakia regarding frontier waters stated that if an installation is likely to cause any considerable or permanent change in the flow of a frontier water course or stream intersected by the frontier, each of the two states shall take account of the legitimate claims of the interesected parties in the other state.[11] Similar provisions are to be found in the treaties between Germany and France, and the Grand duchy of Luxembourg, relating the Upper Rhine and the Moselle respectively.[12] Similar principles came into the Berne Convention of October 4, 1913, between France and Switzerland. Article 4 provides that the dam to be constructed would operate in accordance with "a set of rules agreed between the two government with a view to avoiding any risk of floods and any damage to the plant upstream, and so far as possible ,mitigating down stream the detriment which may result from the changes in the water flow."[13]

The principle of limited territorial sovereignty is to be found in the convention between France and Italy of December 17, 1914.In Articles 1, and 3 of that treaty, both parties declare that they will avoid using or allowing the exploitation of the Raya river and its tributaries in the sections only under their jurisdiction unless prior concurrence in given.

From the foregoing analysis of some of the European water treaties are important principle becomes apparent i.e, each state possesses rights of sovereignty. However this right is limited by a second consideration which is the duty not to injure the rights of the co-riparian state.[14]

2. THE AMERICAN CONTINENT

The American Continent too witnessed sharp disagreement over the sharing of river waters in the 18th and 19th centuries. The treaties signed on the European Continet at times provided the basis for cooperative action

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11. *League of Nations Treaty Series*, Vol.109, p.219.
12. See Berber, *op.cit.*, p.75.
13. H.A.Smith, *Economic Uses of International Rivers* (London :1931), p.178.
14. *British and Foreign State Papers*, Vol. 108, p. 487, Smith, Economic Uses of International Rivers, Ibid., p.179.

with regard to the allocation of river waters. However in some cases the situation demanded a completely new set of ideas and rules which had to take into account the particularties of a specific situation.

For instance, the Jay treaty of 1794, concluded between Great Britain and the United States in connection with navigation of boundary waters is an important landmark in the evolution of international rules regarding water rights. It was mutually agreed, that "both parties living on both side of the boundary should be free at all times to pass and repass by land or inland navigation into the respective territory of each country; to navigative all the lakes, rivers, and water thereoff, and freely to carry on trade and commerce with each other.[15] A return to the north American scene shows united attempts to develop machinery for the settlements of boundary water problems.

Another milestone in the evolution of International River Law is the treaty of Washington signed between United States and Mexico in 1906. In 1894 a dispute started as a result of the change in the course of the Rio-Grande in the United States to the detriment of Mexico's interest in the river. The Mexican Government protested against the injury caused to its existing interest claiming that, the principles of International Law would form a sufficient basis for the rights of the Mexican inhabitants of the bank of the Rio-Grande.[16] During the late 19th century and the early 20th century demands upon the waters of the Rio-Grande were increasing and friction between the United State and Mexico over the control of the river waters gathered momentum.[17]

Negotiations between US and Mexico ultimately culminated the treaty of water. The United States renounced de-facto, if not dejure the principle

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15. See Detail in L.M. Bloomfield and G.R. Fitzgerald, *Boundary Waters Problems of Canada and the States* (Toronto:1958), pp.2-3.
16. William L. Griffith ,"The Use of Water of International Law", *American Journal of International Law*, Vol . 53, (1959), p.3.
17. *United States Treaty Series*, No. 455.

of absolute sovereignity.[18] The convention of May21,1906 provided that Mexico would receive a limited a quantity of water from the Rio-Grande. Article 4 of this treaty makes it clear, however that the supply of water to Mexico "should not be construed as recognition by the United States of any claim on the part of Mexico to the said waters".[19]

The US shares water and shares longer boundaries related to water with Canadian. The two were at longgerhead for some time over the issue of water rights. In most case, the United State, being the riparian state, defended its case by invoking the principle of absolute territorial sovereignty, although Canada as the lower riparian state, upheld the principal of territorial integrity, whereby restriction are placed on another states right to change the natural flow of international waterway without perior occurence. As a matter of fact, Canada explained the United States attitude as contrary to International Law.[20] An important boundary waters treaty was signed between them in 1889. The treaty defines boundary water in its preliminary Article as:

> "The waters from main shore to main shore of the lakes and rivers and connecting waterwavs, or the portion thereof along which the international boundary between the United States and the Dominion of Canada passes includung all bays, arms and inlets thereof, but not including tributary water which in their natural channels would flow into such lakes, rivers and waterways, or waters of rivers flowing across the boundary."[21]

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18. Pierre M. Sevett, *Legal Aspect of Hydro- Electric Development of Rivers and Lakes of Common Interest* (U.N. Document E/ECE/136, 1952), p.114.
19. Samir N. Saliba, *op.cit.*, p.52.
20. Chacko, The Inter national Joint Commission (New York :1932), p .74-75; Gibbans, *International Relations*, Papers Relating to the Work of the *International Joint Commission* (Ottawa: 1929), pp.8-9 and see also Burpee, *A Sucessful Experiment in International Relations, Papers relating to Work of the International Joint Commission* (Ottawa: 1929), pp.2-7.
21. Quoted in L.M. Bloomfield and G.R. Fitzgerald, *op.cit.*, p.17.

An International Joint Commission (IJC) was set up in 1909 under the provisions of this treaty to resolve disputes relating to both boundary and transboundary waters. The boundary water treaty and IJC dealt the matter on diversion of flows for irrigation purposes and power generation as well as, reduction of municipal and industrial waste discharge, sharing water costs and benefits concerning the water issues.[22]

The Columbia River, which originates in Canada and which flows into the United States, has been the scene of large scale of hydroelectric generation and irrigation development. The International Joint Commission established an International Columbia River Engineering Broad which made extensive technical studies and on the basis of this was able to draw up plans for the development of the river on a cooperative basis. The commission also, at the request of the two governments, submitted a report relating to the principles to be applied in determining the allocations of benefit and the distribution of costs which would result from co-operative development of the Columbia basin. The Columbia River treaty is an example of an effective use of the federal approach in context of International basin development and settlement of water dispute. Under the fedreal approach crucial and divisive problems can be solved with mutually staisfactory results.[23]

3. AFRO-ASIAN CONTINENT

International water treaties in the Afro-Asian continent are of relatively recent origin and the earliest treaty that was concluded in this part of the world was signed in 1929 between Egypt and the United Kingdom. This treaty was in connection with the diversion of the waters of the Nile River in equal proportion. The Britsh Government suggested that it should be

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22. Mackay," The International Joint Commission Between the United States and Canada", *American Journal of International Law*.,Vol.2 (1928), p.293.
23. Charles E.Martin, International Water Problem in the West : The Columbia Basin Treaty Between Canada and the United States ", in David R. Deener (ed), *Canada United States Treaty Relations* (Durham: Duke University Press, 1963), p.71.

based on following considerations: the legal principle is that the waters of Nile river, the combined flow of white and blue Nile and their branches should be accepted as a single unit, planned for the use of people inhabiting their banks according to their needs and capacity to benefit from the Nile.[24]

In November 1956 an agreement was signed between United Arab Republic and Sudan in the context of the Nile river waters. The main intention of this treaty was that water must be used according to actual need and for the prupose of development. The treaty assigned an estimated 555,000 MCM of waters per year to Egypt and 18,500 MCM to Sudan. The treaty also provides for the creation of a Permanent Joint Technical Commission for the planning of Nile river as single hydrological unit to be developed on the basis of mutual benefit for all riparian states. At present, the 1959 Nile agreement will continue to be the principal regulatory instrument for managing waters of Nile river.[25]

(i)THE INDUS RIVER BASIN AGREEMENT

In 1939 a controversy arose between the province of Sind and province of Punjab as a result of the diversions of the Indus River.Sir Bengal Rao headed a commission which was established to look into the and to make recommendation towards its settlement.

Just after the partition of India, a conflict arose between India and Pakistan regarding the water allocation of Indus Basin. A treaty was concluded between these two counties on May 4,1948 for the utilization of waters of Indus basin. This treaty which was signed with the aid and advice of the International Bank of Reconstruction and Development laid down the following rules:.

The Western rivers Indus, Jhelum and Chenab and its waters are exclusively useful for the development Pakistani territory, except the Jhelum's

24. Samir ,N. Saliba, *op.cit.*, pp 56-57.
25. Naff and Maston , *op.cit.*, p.149.

flow in Kashmir which is significant for the development of Kashmir.

In the case of the eastern rivers Rabi Beas, and Sutlej India would utilize their waters except for a specified transition period during which India would partially supply waters to Pakistan. Each country would construct the works located on its own territories which are planned for the development of supplies.[26]

The cost of such works would be born by the country to be benefited thereby. An appropriate procedure would be established for adjusting or arbitrating dispute related to allocation of cost under this principle.[27] Permanent Indus Commissin was set up to settle the dispute over water as the provisions of the treaty.

(ii) THE GANGES WATER AGREEMENT

The Ganges Water Agreement was signed on November 5,1977 over the sharing of Ganges waters at Farakka. Its aim was also to find a long term solution for augmentation of the dry season flows of Ganges. Bangladesh and India visualized divergent solution as to how to increase the dry season flow of Ganges River. The proposal of India was a transfer of water from the Brahmaputra River in Assam through a long canal passing through Bangladesh. On the other hand Bangladesh proposed storage dams in the upper reaches of the Ganges River in Nepal and India that would store wet season flow for release during the low flow period. Bangladesh was unwilling to permit the country's second major river to fall under the physical control of India, which the diversion structures at Jhogighopa and the outfall at Farakka would involve. Officially, Bangladesh has rejected the link canal proposal as technically and economically unfeasible and ecologically ruinous. The Ganges water agreement of 1977, neverthless, has provided a solid foundation for a durable settlement to be reached. Pending a perma-

26. *Report of the Indus Rau Commission* 1942, Vol.1 (Punjab: Government Printer, 1950), pp.10-11, and see also *United Nations Treaty Series*, Vol. 54.
27. Quoted in Berber, *op.cit*., p.106.

nent settlement the agreement of 1977 can be beneficial for the existing dry season flows.[28]

4. INTERNATIONAL WATER TREATIES IN WEST ASIA

Treaties regarding international rivers in West Asia have been patterned on the lines of American and European water treaties. The earliest treaty on West Asian water resources was concluded in December 1920 between France and Britain involving the Tigris, Euphrates, Jordan and the Yarmuk rivers. The treaty the practice where the vested as well as reserved rights of riparian states were protected. Under Article 3 of the treaty two contracting parties would agree to nominate a commission to examine a plan of irrigation organized by the government of the French mandatory, territory the execution of which would be of a nature to diminish in any considerable degree of the Tigris and Euphrates water at the point where they enter the British mandate in Mesopotamia."[29] Article 8 of the same treaty further has become essential for the agreement that a second commission was to be appointed to invigilate incommon-the empolyment, for thr irrigation purposes and the production of hydroelectric power, of the waters of the upper Jordan and the Yarmuk and its tributaries, after satisfiction of the needs of the territory under the French mandatory power.

In 1921, the Treaty of Friendship was concluded between Persia and Russia. The two countries stated that "they shall have equal rights of usage over the Atrak River and other frontier rivers and Waterways".[30] An important West Asian treaty was signed between the United Kingdom and France on February 3,1922 in connection with the utilization of the Yarmuk waters proportionately. This treaty recommended that the "inhabitants of Syria and Lebanon shall have the same fishning and navigation rights on

28. Malin Falkenmark, "Fresh water as a Factors in Strategic Policy and Action" in Arther H wesling, (ed), *Global Resources and International Conflict* (New York: Oxford University , Stockholen International Peace Research Institute 1986), pp.93-94.
29. League of Nations Treaty Series Vol.22 pp.355 Quoted in Samir N. Saliba *op.cit.*, p 60.
30. League of Nations Treaty , Vol .9. p401. Quoted in Samir N. Saliba, Ibid., p.59.

Lake Huleh and Tiberias and the river Jordan as the people of Palestine.[31]

The Final Protocol of the Franco-Turkish delimitation commission, May 3,1930, recommended that: "whereas its neighbourshood on the Tigris imposes on the riparians specific obligations, it becomes neccessary to establish rules in connection with the rights of each sovereign state in its context with the other". All questions, for example-navigation, fishing, industrial and agricultural utilization of the waters, and the policing of the river shall, be solved on the lines of complete equality.[32] Internationally the general rule for boundary river is that the boundary follows the thalweg.It is considered to assure access to navigation to both countries.In the case of the Shatt, however, Iraq can make a compelling appeal to equitable considerations of the sort often in deciding marine boundaries.[33]

On March 29, 1946 the Treaty of Friendship and Good Neighbourly Relation was concluded between Iraq and Turkey. It declared that both countries have importance of conservation works on the Tigris and Euphrates with it branches, in order to insure the flow of the two rivers with a view to avoid the danger of floods during the annual periods of high water.[34] The treaty has significance for cooperation on the part of both countries on matters in the light of the exchange of information on the water-flow records and other data of the two rivers. Turkey moreover, agreed to grant the Iraq to right to construct dams and other similar works on sites which are located in Turkish territory with the stipulation that Iraq will defray the cost of the constructions. Article 4 of the treaty stated that the above mentioned works shall be the subject of a separate agreement in respect of its site, cost operation and maintenance, and its use by Turkey for purposes of irrigation and power production. Under Article 5, Turkey agreed to keep Iraq informed of plans for the construction of conservation works on either of the two rivers or tributaries. On June 4, 1953, Syria and Jor-

31. Ibid., p.60.
32. *United Nations Treaty Series*, Vol. 37, pp.207-291.
33. Naff and Maston , *op.cit.*, p.178.
34. *United Nations Treaty Series*, Vol. 84. p.24.

dan signed a treaty concerning the joint development and utilization of the Yarmuk river.[34] On July 6,1987 an agreement was signed on economic co-operation between Turkey and Syria. Turkey was infavour of ad-hoc bilatcral joint ventures in water and energy development and was prepared to cooperate on data management.

It is obvious that International water treaties in West Asia are few and even the *ove's that have been signed are of a general nature. Many question still remain unan*swerable and there seems to be very little effort to deal with contentious issues. Do upstream state within which a river originats, have priority over down stream states? Do population growth and other needs in one riparian state give it priority over another ? Should a riparian state be demanded to consume water in more economical ways? Should it be demanded if one riparian state to use only certain sources of waters and leave specific sources for supplying the needs of other? These and related questions are as yet unanswered in the region and there is very little by way of international water treaties to serve as a guide. The lack of political understanding and intense competition for regional influence is an important factor hindering the evolution of mutually acceptable water treaties in the region. Coupled with this is fact that the subject of water raises unique emotions. The result is that each country prefers to go it alone and all pragmatic solution have been scarificed at the altar of populist and sometimes grandiose schemes. It is only in the 1990's that the states in the region have shown some degree of willingness to eschew unilateral action and work out solution on a cooperative basis in the light of existing international laws and conventions.

CONCLUSION

International Law in connection with the sharing of river water resources is still in a status quo stage and a full fledged international legal regime pertaining to this can develop only with the cooperation of all riparian states. The development of water resources or a regional basis must involve relevant legislation and subsequent institu-

35. Samir N.Saliba , *op.cit.*, p.61.
36. Natasha Beschorner, "The Tigris Euphrates Basin Region ", Water and Instability in the Middle East, *Adelphi Papres 273 (* Winter 1992-93).

tions to control that development. In international law, a distinction is drawn between national or international rivers. If a river, touches through or along the territory of two or more states it is known as international river and is governed by the rules of the international river Law. If a runs completely with in the territory of a single state then it is a known as a national river.

Europe was the first continent which witnessed disagreement over the sharing of river waters. In 17th century dispute arose over navigation rights on Danube and Rhine rivers. This controversy was resolved with the singing of several agreement which have become milestones in the development of international law on navigation .

The American continent to evident sharp disagreement over the sharing of Rio Granda, Colorado, Columbia rivers, waters in the 18th and 19th century. The treaties signed on the European Continent at times provides the basis for cooperative action with regard to the allocation of river waters. However, in some cases the situation demanded a completely new set of ideas and rules which had to take into account the particularties of a specific situation. International water treaties on the Afro-Asian Continent are of relatively recent origin and the earliest treaty that was concluded in this part of the world was signed in 1929 between Egypt and the United Kingdom. The treaty was regarding the diversion of the waters of the Nile in equal proportion. The subsequent 1959 agreement continues to be the principal regulating instrument for managing waters of Nile river.

In 1939 a conflict arose between the province of Sind and province of Punjab as a result of the diversions of the Indus river sir Bengal Rao headed a commission which was established to find a solution. Just after the partition of India, a controversy flared up over the allocation of waters of the Indus Basin Between India and Pakistan. On May 4, 1948 a treaty was signed between these two countries which contemplated that further negotiations should take place in order to settle by agreement and in accordance with international law and equality the problems of Indus Basin. Ganges water agreement was signed on November 5, 1977 over the sharing Ganges Water at Farakka. Its main aim was to find a long term solution for augmentation of the dry seasons flow of water of Ganga.

Treaties related to international rivers in West Asia have been patterned in the light of European and American water treaties. The earliest treaty in this connection was following:

Franco-British convention signed in December 1920 in relation with the Tigris. Euphrates, Jordan and the Yarmuk rivers. Under the convention they reflect the practice where the vested and reserved rights of riparians states were protected. In 1921, the treaty of friendship concluded between Persia and Russia stated that the two countries they shall have equal rights in connection with the sharing of Atrak river and other frontier rivers and waterways. In 1922, the treaty was passed on Yarmuk river, the treaty was concluded between Syria and Lebanese shall have same have same fishing, and navigation rights on Lake Huleh, Lake Tiberias and the river Jordan. In 1930 the final protocol of the France Turkish Delimitation Commission, stated that the neighbouring states should have waters of Tigris for the multipurpose uses. In 1946, the treaty of friendship and Good Neighbourly Relation was signed between Iraq and Turkey. Both countries shall have equal region in connection with the conservation works on the Tigris and Euphrates to regulate the flow of the two rivers and in order to insure the maintenance of a regular water supply during the annual periods of high water.

In 1953 Syria and Jordan concluded a treaty over Yarmuk for its Joint development. The main purpose of this treaty was to establish of a joint Syrian-Jordanian committee to supervise the execution of the plan. In July 1987 on economic agreement was concluded between Turkey and Syria. Turkey was willing to have *adhoc* bilateral joint ventures in water and energy development and was prepared to cooperate on management. It is a fact that international water treaties in West Asia are few and even the over that have been concluded are of a general nature. In these negotiations which are still continuing some progress has been made regarding sharing of water resources However, long term cooperative development of international river water resources in West Asia present the greatest challenge to policy makers within and outside the region. In the West Asia region a number of water rellated economic and strategic issues still remain unresolved.

In 1990's water issue where on the agenda of the multilateral talks which were

concluded began in Madrid in 1991. In connection with the equal water sharing between riparian states.

A comprehensive water development scheme for the region can be successful only if the parties to the conflict are prepared to make essential concessions. This requires the subsuming of narrow national interests of each riparian state to the greater regional interest.

CONCLUSION

International Law in connection with the sharing of river water resources is still in a status quo stage and a full fledged international legal regime pertaining to this can develop only with the cooperation of all riparian states. The development of water resources or a regional basis must involve relevant legislation and subsequent institutions to control that development. In international law, a distinction is drawn between national or international rivers. If a river, touches through or along the territory of two or more states it is known as international river and is governed by the rules of the international river Law. If a runs completely with in the territory of a single state then it is a known as a national river.

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CHAPTER: V

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The issue of sharing river water and problem of water shortage has become acute in the West Asian region. These problems are likely to become critical unless urgent and immediate action is taken both to increase and to conserve existing supplies of water resources. West Asia is a developing arid region and is facing the problem of water crisis. It has arid or semi-arid climate with average annual rainfall levels of less than 250 MMY. It is also a cyclone dominated area. Some parts of the region which are near the Mediterranean Sea, experience a special type of climate called the Mediterranean climate. There winters are mild, summers are warm and rainfall is during the winter season. There are three major drainage basins: the Jordan drainage basin, the Litani drainage basin and the Euphrates-Tigris drainage basin.

The Jordan River is the most important source of water in the Jordan basin. The river flows through Jordan, Syria, Lebanon and Israel. The length of this river is 156 miles of which 73 miles is under Israeli controlled territory. Its total flow is 1880 MCMY of which 77 per cent is in the Arab States and 23 per cent in Israel. The Jordan's northern headwaters have three tributaries- the Hasbani in Lebanon, the Dan in Israel and Baniyas in Syria. The major tributary of Jordan is the Yarmuk. Its annual discharge is 400 MCM. The area of Yarmuk basin is 7,252 square kilometres. Upper Jordan and headwaters of Yarmuk are major source of ground water. The Jordan basin includes also Israeli captured territories West Bank, Gaza Strip and the Golan Heights. The Jordan system discharge an average annual flow of 1850 MCM into the Dead Sea. Generally high quality of water is received by the Jordan's headwaters. As the Jordan proceeds down into the Rift Valley toward the Dead Sea it becomes saltier.

For centuries, the Jordan River has been a symbol of life and peaceful coexistence in West Asia. As water comes down the southern slopes of Jabel-el Sheikh, it

stops for a time in Lake Huleh and the Sea of Galilee and then it meanders southward through the Jordan Valley into the Dead Sea. With the passage of time, the emergence of Zionism demanding exclusive control over historic Palestine sowed the first seed of discord in the basin. In 1897 Theodor Herzl wanted the creation of a Jewish State for the Jews. The First Zionist Congress was held at Basle on August27, 1897 which demanded the creation of a National Home for Jews in Palestine. The outbreak of the First World War provided the Zionist movement the much needed opportunity to work for its goal. The defeat of the Ottoman Empire in World War I led to a redrawing of the map of West Asia. At the Paris Peace Conference held in 1919, Britain a long time ally of Zionism was given the mandate over Palestine and Transjordan and France got mandatory powers over Syria and Lebanon. It was during twenty five years of mandatory rule that the foundations of a Jewish state was firmly laid in Palestine. With the active connivance of the British authorities, massive Jewish immigration from Europe to Palestine took place during this period.

The indigenous Arab population of Palestine protested this massive influx of foreigners and several times this protest degenerated into violence. However, Arab protest had little if any impact on Jewish immigration which continued unabated. After the Second World War, Britain, unable to handle the explosive situation in Palestine decided to terminate its mandate and handover Palestine to the United Nation. The UN decided that partition of Palestine into an Arab and Jewish State was the only logical solution to the problem of Palestine. Thus the State of Israel was created by the UN in June 1948.

The Arab-Israeli War started in early 1948. It was concluded by four Armistice Agreement in 1949. Form early 1920's, a number of plans have been put forth for the utilization of the water of the Jordan. However, till now none of them could be implemented due to differences among the riparian states. Some of the important plans were: Ionides survey (1939), Lodermilk Plan (1944), Hays savage plan (1948), McDonald plan (1951), Cotton plan (1954), Arab plan (1954), Baker Harza plan (1955), the Unified Johnston's plan (1955), Israeli National Water Carrier plan and the Jordan headwaters diversion (Arab League plan 1964).

Israel considers the control over water supply a strategic instrument and defensive technique that greatly affects regional balance of power. Predictably, Israel's policy has generated a lot of tension as the riparian states have opposed Israel's attempts to control the water of the River Jordan. After its failure to acquire water of the Jordan in cooperation with the Arab State, its embarked on its National Water Carrier project. A major feature of Israeli water project was in connection with irrigation of the Negev and its articulated water policy. The National Water Carrier Project was started after the armistice agreements of 1949.

The Litani river originates in the south of Lebanon and is a national river in the republic of Lebanon. The Litani is 170Km long and has narrow ridge and width approximately 6km . Its basin has been divided into three major parts; the Upper basin, Middle basin and Lower basin . The area of its basin covers 2,290 sq. km that separates the Litani from the Hasbani river, a tributary of Jordan. The total flow of Litani is approximately 700 MCMY, of which Upper basin contributes 325 MCM, the Middle basin adds a net flow of 315 and the lower basin 60 MCM per annum. The Awali river is also a major contributor in the context of waters of Lebanon.

The early 20th century, Israel has been showing interest to acquire the Litani waters. In February 1919 the World Zionist Organisation (WZO) placed before the Supreme Council at the Paris Peace talks, a proposal concerning the boundaries of Palestine. It started from the Mediterranean coast just south of Sidon, running in easterly direction across the Litani river and included whole of the catchment area upto it northern most source in Rashayya before turning south towards Golan Heights. The Zionist proposal was opposed by France which insisted upon the original Sykes-Picot line.

The joint study approved in 1943 therefore, that most of the water be diverted from a point where the river takes a westward bent through a tunnel into Palestine. In exchange for water Lebanon would receive all or part of the power produced by the water drop from the mountains to the Jordan Valley. The study heartened the Zionist, whose dream of Negev development could not be fully realized without the Litani waters. In 1944,W.C. Lowdermilk proposed a Jordan Valley Authority (JVA) on the

lines of the Tennessee Valley Authority (TVA). The details of JVA were developed by James Hays, Chief engineer of TVA. Lowdermilk noted the possibility of tapping the Litani and diverting some of the water to the Palestine coast and Negev. Soon, these scheme however, lost relevance because of establishment of the state of Israel in May 1948. The establishment of Israel immediately sparked off the First Arab Israeli War. The Israeli army occupied southern Lebanon up to the point where the Litani takes a West ward bent, when negotiation for a General Armistice started, Israel tried to link its withdrawal form Lebanese territory with guaranteed access to the waters of the Litani. Israel's attempt to bring in the Litani into a regional water development scheme did not find favour with the Americans. Waters of the Litani have been a source of great attraction for the Jewish State since 1948. Prior to the establishment of the state of Israel, the Zionist Agency in Palestine made every possible efforts to include the Litani river within the boundaries of the future Jewish State. However, they failed in their efforts and the Litani remained within Lebanon. It was only in the late 1970's that Israel could manage to obtain a foothold on the Litani when it occupied a portion of Southern Lebanon. With the second Israeli invasion of Lebanon in the early 1980's, this occupation was further, expanded and consolidated. Israel carried out extensive hydrological and technical studies, aimed at diverting part of the Litani's water into northern Israel. In 1990's several multilateral negotiations were held to solve the problem related to water. The 1991 Gulf War acted as a catalyst in reopening peace talks in the region. The first round of the talks between the frontline Arab States and Israel took place in Madrid in October 1991. One of the items on the agenda of the multilateral talks was sharing of river water in the region. At the subsequent rounds of negotiation Israeli government has shown a willingness to withdraw from southern Lebanon in return for some amount of assured water supply from the Litani. The Lebanese government too has indicated that it is not averse to sharing water with Israel for its better economic development.

The longstanding problem of sharing Litani waters, can only be solved by adopting a creative approach in the frame-work of regional cooperation. Both Israel and Lebanon can workout a formula whereby water can become an instrument for promot-

ing peace and regional development. What is needed is a willingness to make mutually beneficial compromises on the part of Beirut as well as Tel-Aviv. Without such a positive attitude it is extremely unlikely that the vexed question of sharing water can ever be solved in this turbulent region.

In January and May 1992 multilateral talks were held at Moscow and Vienna respectively. At the Vienna talks the Jordanians, Palestinians and Israeli delegations agreed to cooperate and exchange data. An interim agreement on sharing groundwaters of West Bank was signed between the Palestinians and Israeli in September 1993. The following year in 1994 the Israeli delegation at the multilateral agreed to discuss water rights.

The Euphrates and Tigris are the major rivers in the Euphrates-Tigris basin. The Euphrates flows through Turkey, Syria and Iraq. The Euphrates is 1,480 miles in length from the confluence of Karasu and Murad-Suyu to Basra. Three major tributaries of Euphrates originate in Turkey—Khabur, Sajur, and Balikh rivers. The Firat is the main stream and it has four important branches the Karasu, the Murat, the Munzur and the Peri. The mean discharge of Euphrates is 31,820 MCMY. The annual discharge differs from 16,871MCM to 43,457MCMY. The maximum discharge is 164,000MCMY. The Euphrates carries about 6,100 ppm silt by weight and it is deposited in the inland delta. The Tigris flows in southern Turkey and comes directly into Iraq from Turkey and the its total length is 1,718km. The major tributaries are the Great Zab, the Lesser Zab, Diyala and the Adhaim. The Tigris carries an average of 42,230MCM water discharge. The minimum discharge is estimated to be 5,140MCMY,and the maximum 44,000MCMY. During times of flood, the Tigris receives about 20,000ppm sit by weight. The Tigris and Euphrates together drains 808,000sq.km.

The Euphrates and Tigris rivers have been a source of livelihood since 4000B.C. In this basin various old civilization have developed and thrived. The region is called as the "cradle of civilization". The Mesopotamian and Babylonian civilizations have flourished in the region. From the beginning of this century, the sharing states of Euphrates-Tigris drainage basin have all formulated plans and implemented projects to regulate the flood waters of Euphrates as well as utilize its water for multipurpose

projects. In 1913 a Hindiyia barrage was constructed on the Euphrates to divert water of Euphrates into a canal, and increment in the general water level of the Euphrates. In the 1950's a second barrage was made at ar-Ramadi. Its main purpose was the diversion of Euphrates flood water into Lake Habbaniyah and the Abu Dibbis natural reservoirs to avert the danger of flood. The Euphrates dam was completed in 1973 with the Soviet help and cooperation. Turkey started work on a series of multipurpose dams. The Keban dam was constructed in 1974 on the Euphrates river with a total capacity of 1,650 MCM, of which 360 MCM is left for storage. The dam at Karababa, renamed the Ataturk dam, is intended to supply irrigation water for 3000,000 ha (2,964,000 dunams) in the Severck-Hilian Upper Martin and Nusaybin Cizre areas. The total capacity of Ataturk dam is 48,700 MCM.

Several dams and barrages have also been constructed on the Tigris river. In Baghdad, both rivers flow in distinct and well defined valleys at a distance of 40km from each other. Tharther barrage, similar to the Ramadi, was built in 1955-56 at Sammara on the Tigris. It has capacity of diverting 28,382 MCMY of water in the direction of the depression of wadi and its storage capacity is 72, 840 MCMY. The Dukhan dam was constructed in 1959 on the Lesser Zab river and has total capacity of 6,300 MCMY. Further south, the Darbandi Khan dam was built with in 1961 on the Diyala River with total storage capacity 3,250 MCMY. During the dry seasons when the Turkish and Syrian dams impounded part of the Euphrates spring flood, a major crisis developed between Syria and Iraq that brought the two counties to the brink of war. Iraq and Syria traded hostile statements in which Iraq threatened to take any action necessary to insure the Euphrates flow and Syria protested that it was passing on to Iraq 71 per cent of the water it received from Turkey.

At the end of April 1975 a technical committee was formed by the Arab League. Which had of representatives from Syria, Iraq and seven other Arabs state. As tension mitigated between Syria and Iraq, a round of hostilities erupted between the riparian states and this time which related to the construction of Karakaya Dam in Turkey. During the late 1970's and early 1980's. Baghdad and Damascus complained against Ankara that it was holding back a main part of the water from the Euphrates for it use.

A committee discussed several time on exchange of hydrological data. But the problem of water allocation has not been solved so far. Turkey's assertive position on the issue of Euphrates water right is unacceptable to both Syria and Iraq. They have therefore spurned Ankara's offer of joint ventures as long as their legitimate rights are not recognized by the Turkish government. In the 1990's the problem of sharing Euphates water has become more complicated Euphrates rivers for HEP generation and irrigation purpose. The first stage of GAP consists of 13 projects of which 7 are on the Euphrates and 6 on the Tigris. The Euphrates and Tigris are international rivers. Both have immense regional importance. Control of these rivers has become increasingly contentious, as the demand for water an increasing every year, in this dry region. The economic prosperity and regional development of those state are based on them. In late 1960's and the early 1970's various difference cropped up between sharing state in connection with the water allocation of two rivers. The relations between Turkey and Syria have been strained many a time, mainly due to the formers efforts to control the flow of the rivers .

Due to the inability of three riparian states to reach formal agreement to share water the 1970's witnessed several clashes between Turkey, Syria and Iraq over sharing right. A serious disagreement regarding water flared up in 1975 between Iraq and Syria flow as the outcome of the completion of Syria's Tabqa dam. During the by season when the Turkish and Syrian dams impounded part of the Euphrates spring flood, a complicated as Syrian and Turkish irrigation works one at the verge of completion as well as sewage and industrial development in the two countries threaten to water lower quality as gone up phenomenally in recent years.

Growing population is also a source of concern as the demand for water for domestic use has detoriated the water quality and quantity day by day. With the quality and quantity of Euphrates water detoriating day by day, Iraq is the country most adversely affected.

International Law regarding the sharing of river water resources is still in a nascent stage and a full fledged international legal regime pertaining to this issue can develop only with the cooperation of all riparian states. The development of water

resources on a regional basis or state must involve relevant legislation and subsequent institutions to control that development. In international law, a distinction is drawn between national and international rivers. If a river, passes through or along the territory of two or more states it is know as international river and is governed by the rules of the international river law. If a river flows completely within territory of a single state then it is a national river.

Europe was the first continent which witnessed disagreements over the sharing of river waters. In 17th century controversy arose over navigation rights on the Danube and Rhine rivers. This controversy was resolved with the signing of several agreements which have become milestones in the development of international law on navigation. The Rhine and Danube commission were primarily administrative bodies concerning navigation issue. The American continent too witnessed sharp disagreement over the sharing of river water in the 18th and 19th century. The treaties signed on the European continent at times provided the basis for cooperative action with regard to the allocation of river water. However, in some cases the situation demanded a completely new set of ideas and rules which had to take into account the particularities of a specific situation. There various treaties were signed in connection with the navigation boundary waters in an important landmark in the evolution of international rules regarding water rights. For instance; Jay treaty (1794), Rio-Grande treaty (1906), Columbia river treaty (1909), and Tijiuana and Colorado treaty (1944).

International water treaties in the Afro-Asian continent are of relating recent origin and the earliest treaty that was concluded in this part of the world was concluded in 1929 between Egypt and the United Kingdom. This treaty was in the context of the diversion of the waters of the Nile river proportionately among riparian states. The British Government suggested that it should be based on following consideration: The legal principle is that the waters of Nile river, the combined flow of the white and blue Nile and their branches should be accepted as a single unite, designed for the use of people inhabiting their banks according to their needs and capacity to benefit from the Nile.

Just after the partition of India, a conflict developed between India and Pakistan

in relation with the water allocation of Indus Basin. The treaty was signed between these two countries on May 4, 1948 for the utilization of water of Indus basin. The Ganges water agreement was signed on November 5, 1977 over the sharing of Ganges water at Farakka. Its aim was also to seek a long -term solution for a augmentation of the dry season flows of Gangas. The Gangas water agreement of solid foundation for a durable settlements to be reached. Pending a permanent settlement, the agreement of 1977 can be useful for the existing dry seasons flows.

Treaties regarding international rivers in West Asia have been patterned on the lines of European and American water treaties. The earliest treaty in this connection was following: the Franco-British convention concluded in December 1920 involving the Tigris, Euphrates, Jordan and the Yarmuk rivers: It reflects the practice where the vested as well as reserved rights of riparian states were protected. During the mandate, Britain and France adopted several agreement to regulate the flow of international rivers under their jurisdiction to develop upstream consumptive uses in Syria and Lebanon. They agreed to permit Palestinian authorities to do work in Syria for the benefit of down stream users. The mandatory system provided legal machinery for resolving conflicts over water through bilateral consultations. In 1921 the treaty of friendship concluded between Persia and Russia stated that the two countries they "shall have equal rights of usage over the Atrak river and other frontier rivers and water ways". An important West Asian water treaty was signed between the United kingdom and France on 3 February 1922 in connection with the utilization of the Yarmuk waters in equal proportion. The Final Protocol of the Franco-Turkish delimitation commission, May 3, 1930 recommended that: "whereas its neighbourhood on the Tigris imposes on the riparian specific obligations, it becomes necessary to establish rules regarding the rights of each sovereign state in its contexts with other water purpose." In March 1946 the treaty of Friend Neighbourly Relation was concluded between Iraq and Turkey. As per this treaty both countries could carry out conservation works relating to the Euphrates and Tigris in order to regulate the flow of the two rivers with a view to avoiding the danger of floods during the annual period of high water. The main aim of this treaty was both countries can conservation relating

Euphrates and Tigris, in order to regulate the flow of the two river during the annual period of high water.

In June 1953, Syria and Jordan signed a treaty concerning the joint development and utilization of the Yarmuk river waters. In July 1987 an economic cooperation agreement was signed between Turkey and Syria. Turkey was infavour of ad-hoc bilateral joint ventures in water and energy development and was prepared to cooperate on data management. It is obvious that; International water treaties in West Asia are few and even the over's that have been signed are of a general nature. Many questions still remain unanswered and these seems to be very little effort to deal with contentious issues. Do upstream states within which a river originates, leave specific, have priority over down stream states? Do population growth and other needs in are riparian state gave it priority over another? Should a riparian state be demanded to consume water in more economical ways? Should be demanded of one riparian state to use only certain sources of water and leave specific sources for supplying the needs of other? These and related questions are as yet unanswered in the region and there is very little by way of international water treaties regime to serve as a guide. The result is that each country prefers to go it alone and all practical considerations and pragmatics solutions have been sacrificed at the alter of populist and sometimes grandiose schemes. It is only in the 1990's that the states in the region have shown some degree of willingness to eschew unilateral action and workout solutions on a cooperative basis in the light of existing unilateral laws and conventions.

From the foregoing analysis it is apparent that the instead of exploiting the river on a regional basis, each of these states has preferred to go it alone on whatever portion of the river that happens to lie within or along its borders. The result of this approach has been tragic, not only because such an approach is insufficient and uneconomical, but also and perhaps more importantly, such action has the potential of precipitation war among the sharing states of West Asia.

Water, however, has often been seen as the primary strategic factor behind the political and military manoeuvring in region. Under such tensed conditions, issues that might otherwise be managed peacefully can always trigger extreme responses. Water

conflict in West Asia have been zero sum water for one user means lack of water for the other. Factors of ideology and nationalism, prevent West Asian states from cooperating with each other to alleviate the problem of water scarcity. However, in the present scenario the only remedy lies in taking a regional approach to the problem. That is, water from certain countries could be diverted to other, according to the needs. This implies tacit recognition of the legitimacy of various demands. Thus factors like population growth and other needs in one riparian should be given priority over another. At the same time a riparian should be asked to consume water in more cronomical ways. It should also be demanded of one riparian to use only certain sources of water leave a specific source for supplying the needs of other. Conservation measures such a reduction of waste in irrigation, phasing-out of water intensive crops and price increases towards real value should be taken up an endangering basis. Neither time, money or hope should be wasted on regional water development projects. Care must be taken, however, to avoid plans that are grandiose or impossible part water development projects like the 1950's plan of Eric Johnston failed to anticipate the level of hostilities in the region. In order to avoid past mistakes future project could be financed by the international monetary fund on the condition that the granting of money depended an unanimous agreement among the all riparian states.

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1 hectare (ha) - 2.4 feddans
1 hectare (ha) - 10 dunams
1 cubic metres (M^3) - 1000 Litres
Water supply and consumption is expressed in million cubic metres (MCM) 1,000 million cubic metres = 1 billion MCM or 1 cubic kilometres (1 km^3)

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